

100- to 150-Seat Large Civil Aircraft from Canada

Investigation Nos. 701-TA-578 and 731-TA-1368 (Preliminary)

Publication 4702

June 2017

U.S. International Trade Commission



Washington, DC 20436

U.S. International Trade Commission

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Note.—Information that would reveal confidential operations of individual concerns may not be published and therefore has been deleted. Such deletions are indicated by asterisks.

UNITED STATES INTERNATIONAL TRADE COMMISSION

Investigation Nos. 701-TA-578 and 731-TA-1368 (Preliminary)
100- to 150-Seat Large Civil Aircraft from Canada

DETERMINATIONS

On the basis of the record¹ developed in the subject investigations, the United States International Trade Commission (“Commission”) determines, pursuant to the Tariff Act of 1930 (“the Act”), that there is a reasonable indication that an industry in the United States is threatened with material injury by reason of imports of 100- to 150-seat large civil aircraft from Canada, provided for in subheading 8802.40.00 of the Harmonized Tariff Schedule of the United States, that are alleged to be sold in the United States at less than fair value (“LTFV”) and to be subsidized by the government of Canada.

COMMENCEMENT OF FINAL PHASE INVESTIGATIONS

Pursuant to section 207.18 of the Commission’s rules, the Commission also gives notice of the commencement of the final phase of its investigations. The Commission will issue a final phase notice of scheduling, which will be published in the *Federal Register* as provided in section 207.21 of the Commission’s rules, upon notice from the Department of Commerce (“Commerce”) of affirmative preliminary determinations in the investigations under sections 703(b) or 733(b) of the Act, or, if the preliminary determinations are negative, upon notice of affirmative final determinations in those investigations under sections 705(a) or 735(a) of the Act. Parties that filed entries of appearance in the preliminary phase of the investigations need not enter a separate appearance for the final phase of the investigations. Industrial users, and, if the merchandise under investigation is sold at the retail level, representative consumer organizations have the right to appear as parties in Commission antidumping and countervailing duty investigations. The Secretary will prepare a public service list containing the names and addresses of all persons, or their representatives, who are parties to the investigations.

BACKGROUND

On April 27, 2017, The Boeing Company, Chicago, Illinois filed a petition with the Commission and Commerce, alleging that an industry in the United States is threatened with material injury by reason of LTFV and subsidized imports of 100- to 150-seat large civil aircraft from Canada. Accordingly, effective April 27, 2017, the Commission, pursuant to sections 703(a) and 733(a) of the Act (19 U.S.C. 1671b(a) and 1673b(a)), instituted countervailing duty investigation No. 701-TA-578 and antidumping duty investigation No. 731-TA-1368 (Preliminary).

¹ The record is defined in sec. 207.2(f) of the Commission’s Rules of Practice and Procedure (19 CFR 207.2(f)).

Notice of the institution of the Commission's investigations and of a public conference to be held in connection therewith was given by posting copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the *Federal Register* of May 3, 2017 (82 FR 20634). The conference was held in Washington, DC, on May 18, 2017, and all persons who requested the opportunity were permitted to appear in person or by counsel.

Views of the Commission

Based on the record in the preliminary phase of these investigations, we determine that there is a reasonable indication that an industry in the United States is threatened with material injury by reason of imports of 100- to 150-seat large civil aircraft (“LCA”) from Canada that are allegedly sold in the United States at less than fair value and that are allegedly subsidized by the government of Canada (“GOC”).

I. The Legal Standard for Preliminary Determinations

The legal standard for preliminary antidumping and countervailing duty determinations requires the Commission to determine, based upon the information available at the time of the preliminary determinations, whether there is a reasonable indication that a domestic industry is materially injured or threatened with material injury, or that the establishment of an industry is materially retarded, by reason of the allegedly unfairly traded imports.¹ In applying this standard, the Commission weighs the evidence before it and determines whether “(1) the record as a whole contains clear and convincing evidence that there is no material injury or threat of such injury; and (2) no likelihood exists that contrary evidence will arise in a final investigation.”²

II. Background

The Boeing Company (“Boeing”), a domestic producer of LCA, including 100- to 150-seat LCA, filed the petitions in these investigations on April 27, 2017. Petitioner appeared at the staff conference and submitted a postconference brief.

Several respondent entities participated in these investigations: Bombardier, Inc. (“Bombardier”), a Canadian producer of subject merchandise; Delta Air Lines, Inc. (“Delta”), an importer of subject merchandise from Canada; and the GOC. All three respondent interested parties appeared at the conference and submitted postconference briefs.

U.S. industry data are based on the questionnaire response of Boeing, accounting for all U.S. production of 100- to 150-seat LCA in 2016.³ U.S. import data are based on questionnaire responses from nine U.S. importers/purchasers, accounting for all imported 100- to 150-seat LCA in 2016.⁴ The Commission received a response to its foreign producers’ questionnaire from Bombardier, which accounted for all production of subject merchandise in Canada.⁵

¹ 19 U.S.C. §§ 1671b(a), 1673b(a) (2000); *see also American Lamb Co. v. United States*, 785 F.2d 994, 1001-04 (Fed. Cir. 1986); *Aristech Chem. Corp. v. United States*, 20 CIT 353, 354-55 (1996). No party argues that the establishment of an industry in the United States is materially retarded by the allegedly unfairly traded imports.

² *American Lamb Co.*, 785 F.2d at 1001; *see also Texas Crushed Stone Co. v. United States*, 35 F.3d 1535, 1543 (Fed. Cir. 1994).

³ Confidential Report (“CR”) at III-1; Public Report (“PR”) at III-1.

⁴ CR at I-5; PR at I-4. There were no subject imports during the January 2014-March 2017 period of investigation. *See* CR/PR at Table IV-2. Delta ordered 75 CS100 LCA from Bombardier (with an option (Continued...))

III. Domestic Like Product

In determining whether there is a reasonable indication that an industry in the United States is materially injured or threatened with material injury by reason of imports of the subject merchandise, the Commission first defines the “domestic like product” and the “industry.”⁶ Section 771(4)(A) of the Tariff Act of 1930, as amended (“the Tariff Act”), defines the relevant domestic industry as the “producers as a whole of a domestic like product, or those producers whose collective output of a domestic like product constitutes a major proportion of the total domestic production of the product.”⁷ In turn, the Tariff Act defines “domestic like product” as “a product which is like, or in the absence of like, most similar in characteristics and uses with, the article subject to an investigation.”⁸

The decision regarding the appropriate domestic like product(s) in an investigation is a factual determination, and the Commission has applied the statutory standard of “like” or “most similar in characteristics and uses” on a case-by-case basis.⁹ No single factor is dispositive, and the Commission may consider other factors it deems relevant based on the facts of a particular investigation.¹⁰ The Commission looks for clear dividing lines among possible like products and disregards minor variations.¹¹ Although the Commission must accept Commerce’s determination as to the scope of the imported merchandise that is subsidized

(...Continued)

for 50 more planes) in April 2016, CR at VII-6 n.5; PR at VII-4 n.5; CR/PR at Table V-2, with deliveries scheduled to begin in 2018. CR/PR at Table VII-5. The Commission collected data from importers/purchasers because U.S. airlines are both importers and purchasers of 100- to 150-seat large civil aircraft.

⁵ CR at I-5; PR at I-4.

⁶ 19 U.S.C. § 1677(4)(A).

⁷ 19 U.S.C. § 1677(4)(A).

⁸ 19 U.S.C. § 1677(10).

⁹ See, e.g., *Cleo Inc. v. United States*, 501 F.3d 1291, 1299 (Fed. Cir. 2007); *NEC Corp. v. Department of Commerce*, 36 F. Supp. 2d 380, 383 (Ct. Int’l Trade 1998); *Nippon Steel Corp. v. United States*, 19 CIT 450, 455 (1995); *Torrington Co. v. United States*, 747 F. Supp. 744, 749 n.3 (Ct. Int’l Trade 1990), aff’d, 938 F.2d 1278 (Fed. Cir. 1991) (“every like product determination ‘must be made on the particular record at issue’ and the ‘unique facts of each case’”). The Commission generally considers a number of factors including the following: (1) physical characteristics and uses; (2) interchangeability; (3) channels of distribution; (4) customer and producer perceptions of the products; (5) common manufacturing facilities, production processes, and production employees; and, where appropriate, (6) price. See *Nippon*, 19 CIT at 455 n.4; *Timken Co. v. United States*, 913 F. Supp. 580, 584 (Ct. Int’l Trade 1996).

¹⁰ See, e.g., S. Rep. No. 96-249 at 90-91 (1979).

¹¹ See, e.g., *Nippon*, 19 CIT at 455; *Torrington*, 747 F. Supp. at 748-49; see also S. Rep. No. 96-249 at 90-91 (Congress has indicated that the like product standard should not be interpreted in “such a narrow fashion as to permit minor differences in physical characteristics or uses to lead to the conclusion that the product and article are not ‘like’ each other, nor should the definition of ‘like product’ be interpreted in such a fashion as to prevent consideration of an industry adversely affected by the imports under consideration.”).

and/or sold at less than fair value,¹² the Commission determines what domestic product is like the imported articles Commerce has identified.¹³ The Commission may, where appropriate, include domestic articles in the domestic like product in addition to those described in the scope.¹⁴

A. Scope Definition

In its notices of initiation, Commerce defined the imported merchandise within the scope of these investigations as follows:

{A}ircraft, regardless of seating configuration, that have a standard 100- to 150-seat two-class seating capacity and a minimum 2,900 nautical mile range, as these terms are defined below. “Standard 100- to 150-seat two-class seating capacity” refers to the capacity to accommodate 100 to 150 passengers, when eight passenger seats are configured for a 36-inch pitch, and the remaining passenger seats are configured for a 32-inch pitch. “Pitch” is the distance between a point on one seat and the same point on the seat in front of it. “Standard 100- to 150-seat two-class seating capacity” does not delineate the number of seats actually in a subject aircraft or the actual seating configuration of a subject aircraft. Thus, the number of seats actually in a subject aircraft may be below 100 or exceed 150. A “minimum 2,900 nautical mile range” means: (i) able to transport between 100 and 150 passengers and their luggage on routes equal to or longer than 2,900 nautical miles; or (ii) covered by a U.S. Federal Aviation Administration (FAA) type certificate or supplemental type certificate that also covers other aircraft with a minimum 2,900 nautical mile range. The scope includes all aircraft covered by the description above, regardless of whether they enter the United States fully or partially assembled, and regardless of whether, at the time of entry into the United States, they are approved for use by the FAA. The merchandise covered by this investigation is currently classifiable under Harmonized Tariff Schedule of the United States (HTSUS)

¹² See, e.g., *USEC, Inc. v. United States*, 34 Fed. App’x 725, 730 (Fed. Cir. 2002) (“The ITC may not modify the class or kind of imported merchandise examined by Commerce.”); *Algoma Steel Corp. v. United States*, 688 F. Supp. 639, 644 (Ct. Int’l Trade 1988), *aff’d*, 865 F.3d 240 (Fed. Cir.), *cert. denied*, 492 U.S. 919 (1989).

¹³ *Hosiden Corp. v. Advanced Display Mfrs.*, 85 F.3d 1561, 1568 (Fed. Cir. 1996) (the Commission may find a single like product corresponding to several different classes or kinds defined by Commerce); *Cleo*, 501 F.3d at 1298 n.1 (“Commerce’s {scope} finding does not control the Commission’s {like product} determination.”); *Torrington*, 747 F. Supp. at 748-52 (affirming the Commission’s determination defining six like products in investigations where Commerce found five classes or kinds).

¹⁴ See, e.g., *Pure Magnesium from China and Israel*, Inv. Nos. 701-TA-403 and 731-TA-895-96 (Final), USITC Pub. 3467 at 8 n.34 (Nov. 2001); *Torrington*, 747 F. Supp. at 748-49 (holding that the Commission is not legally required to limit the domestic like product to the product advocated by the petitioner, coextensive with the scope).

subheading 8802.40.0040. The merchandise may alternatively be classifiable under HTSUS subheading 8802.40.0090. Although these HTSUS subheadings are provided for convenience and customs purposes, the written description of the scope of the investigation is dispositive.¹⁵

100- to 150-seat LCA, the smallest single-aisle LCA, are used to transport passengers and cargo on short- to medium-range routes, including transcontinental routes between the west and east coasts of the United States.¹⁶ Such LCA consist of the following elements: an airframe, which provides the basic structure of the aircraft; a fuselage consisting of a pressurized tube; two wings; a tail; a turbofan engine under each wing; aircraft systems, including flight controls, communications equipment, in-flight entertainment, and an environmental control system; and an interior, including ceilings, walls, seats, lavatories, and crew rests.¹⁷ All 100- to 150-seat LCA within the scope possess a standard two-class 100- to 150-seat capacity, a minimum 2,900 nautical mile range, and accommodates a two-person flight crew to pilot the aircraft and a cabin crew of at least three.¹⁸

There are only three producers of in-scope 100- to 150-seat LCA globally.¹⁹ The only 100- to 150-seat LCA produced domestically during the period of investigation was the Boeing 737-700, which contains 126 seats in a standard two-class configuration.²⁰ Boeing is currently developing a successor to the 737-700 called the 737 MAX 7 (138 seats), which is scheduled to enter service in 2019.²¹ The only 100- to 150-seat LCA produced in Canada are the Bombardier CS100 (108 seats) and CS300 (130 seats), also known as the “C Series.”²² Bombardier launched (*i.e.*, officially announced) the C Series program in 2008 and delivered the first C Series LCA to an airline customer, SWISS, in June 2016.²³ The only 100- to 150-seat LCA produced in nonsubject countries are the Airbus A319ceo (124 seats) and its successor the A319neo (140 seats), which are produced in the European Union and China.²⁴ The A319neo is scheduled to enter service in 2018.²⁵

¹⁵ 100- to 150-Seat Large Civil Aircraft from Canada: Initiation of Countervailing Duty Investigation, 82 Fed. Reg. 24292, 24296 (May 26, 2017); 100- to 150-Seat Large Civil Aircraft from Canada: Initiation of Less-Than-Fair-Value Investigation, 82 Fed. Reg. 24296, 24300 (May 26, 2017).

¹⁶ CR at I-10; PR at I-8; Petition at 34-36.

¹⁷ CR at I-15; PR at I-11; Petition at 35.

¹⁸ CR at I-9-10; PR at I-8; Petition at 35.

¹⁹ CR at I-13; PR at I-10. Embraer, a Brazilian producer, recently introduced the E190-E2 and E195-E2 aircraft with seating capacity similar to that of 100- to 150-seat LCA, but with a lower nautical mile range that classifies them as regional jets. CR at VII-20; PR at VII-10-11.

²⁰ CR at I-11-12; PR at I-9; CR/PR at Table I-1.

²¹ CR at I-12 n.30; PR at I-9 n.30.

²² CR at I-13; PR at I-10; CR/PR at Table I-1.

²³ CR at II-10-11; PR at II-1-2.

²⁴ CR at I-13; PR at I-10; CR/PR at Table I-1.

²⁵ CR at II-14; PR at II-8.

B. Arguments of the Parties

Boeing argues that the Commission should define the domestic like product as coextensive with the scope because a clear dividing line separates domestically produced LCA described by the scope from larger domestically produced single-aisle LCA that are outside the scope. Boeing argues that the smaller size of in-scope LCA as compared to out-of-scope single-aisle LCA dictates a lower two-class seating capacity and a lower maximum takeoff weight.²⁶ The lower seat count of in-scope LCA limits their interchangeability with larger out-of-scope LCA, Boeing argues, because airlines seek to minimize empty seats by using LCA that are no larger than necessary on particular routes.²⁷ While acknowledging that all single-aisle LCA are produced by the same employees in the same production facility, Boeing stresses that in-scope LCA utilize different tooling than out-of-scope LCA.²⁸ Boeing also argues that customers and producers perceive 100- to 150-seat LCA as a distinct market segment,²⁹ and that 100- to 150-seat LCA consistently sell for lower prices than larger single-aisle LCA.³⁰

Respondents argue that the Commission should define the domestic like product as “all single-aisle LCA with capacity for at least 100 seats,” encompassing Boeing’s entire “737 family,” because, in their view, the 737 family is a continuum of LCA with no clear dividing lines.³¹ They claim that all aircraft in the 737 family are based on the same design with varying lengths of fuselage, share the same FAA certificate, and have a range exceeding 2,900 nautical miles,³² and that in-scope 737 MAX 7 LCA and out-of-scope 737-800 LCA can be configured with a similar number of seats.³³ They further argue that in-scope LCA are interchangeable with out-of-scope LCA when the difference in seat count is small and where demand on a particular route fluctuates over time.³⁴ Respondents also emphasize that all single-aisle LCA are produced by Boeing in the same facilities using the same employees, with different tooling limited to subassemblies, and sold through the same channels of distribution.³⁵ In terms of customer and producer perceptions, respondents argue that Boeing markets all 737 variants as a family, stressing the benefits of their commonalities, and that customers perceive few differences between the 737-700/MAX 7 and larger 737 variants.³⁶ While conceding that larger out-of-

²⁶ Petitioner’s Postconference Brief at 10-11.

²⁷ Petitioner’s Postconference Brief at 11-12.

²⁸ Petitioner’s Postconference Brief at 13-14 (quoting Conference Tr. at 61 (Conner)).

²⁹ Petitioner’s Postconference Brief at 14.

³⁰ Petitioner’s Postconference Brief at 14-15. Citing historic pricing data, Boeing claims that the price gap between 100-150 seat LCA and other single-aisle LCA has averaged 20 percent. *Id.* at 15, Exhibit 10.

³¹ Bombardier’s Postconference Brief at 3-4; *see also* Delta’s Postconference Brief at 7.

³² Bombardier’s Postconference Brief at 5-7; Delta’s Postconference Brief at 9-11.

³³ Bombardier’s Postconference Brief at 5-7; Delta’s Postconference Brief at 10-11.

³⁴ Bombardier’s Postconference Brief at 7-8; Delta’s Postconference Brief at 11-12.

³⁵ Bombardier’s Postconference Brief at 10-12; Delta’s Postconference Brief at 12-13.

³⁶ Bombardier’s Postconference Brief at 12; Delta’s Postconference Brief at 13. As evidence that airlines perceive few differences between in-scope and out-of-scope single-aisle LCA, Bombardier notes that ***. *Id.* (citing Importers/purchasers’ Questionnaire Response of *** at 29).

scope LCA are priced higher, respondents assert that the Commission should not consider price to be a determinative factor given the great variability of prices across LCA models and segments and the alleged opacity of prices to market participants.³⁷

C. Analysis

We define the domestic like product as 100- to 150-seat LCA for purposes of our preliminary determinations.

Physical Characteristics and Uses. All types of domestically produced single-aisle LCA, including 100- to 150-seat LCA, possess the same general physical characteristics and uses. In terms of physical characteristics, all single-aisle LCA consist of an airframe, fuselage, wings, a tail, two turbofan engines, and accommodations for passenger, crew, and cargo.³⁸ All can be configured to transport 100 or more passengers and cargo at least 2,900 nautical miles.³⁹

There is also evidence that airlines have some overlap in terms of the seat count between 100- to 150-seat LCA and larger single-aisle LCA. American Airlines has reportedly configured the Boeing 737-800, the next larger Boeing 737 variant above the in-scope Boeing 737-700/MAX 7, with 150 to 160 seats, and the 737 MAX 7 may be configured with up to 172 seats in one class.⁴⁰

The record also indicates that 100- to 150-seat LCA differ from other single-aisle LCA in certain respects in terms of their physical characteristics and uses. In particular, 100- to 150-seat LCA are shorter and have lower maximum take-off weights than other single-aisle LCA.⁴¹ Due to their smaller size, 100- to 150-seat LCA have a lower standard two-class seat count, 126 seats for the 737-700 and 138 seats for the 737 MAX 7, than other domestically produced single-aisle LCA, the smallest being the 737-800 and 737 MAX 8 with 162 seats in a standard two-class configuration and the A321 with 185 seats in a “typical seating” configuration.⁴² All parties agree that seat count is a critical characteristic of single-aisle LCA because airlines seek to minimize empty seats by using LCA that are no larger than necessary on particular routes.⁴³

³⁷ Bombardier’s Postconference Brief at 14-15.

³⁸ CR at I-15, 18; PR at I-11, 13.

³⁹ Conference Tr. at 185 (Aranoff), Bombardier’s Conference Exhibit 4.

⁴⁰ Bombardier’s Postconference Brief at 6, Exhibits 1, 4. A Boeing 737-800 configured with 150 to 160 seats would not fall within the scope of the investigations, which is limited to LCA with a “standard 100- to 150-seat two-class seating capacity” meaning “the capacity to accommodate 100 to 150 passengers, when eight passenger seats are configured for a 36- inch pitch, and the remaining passenger seats are configured for a 32-inch pitch.” CR at I-8-9; PR at I-6-7. According to both Boeing and Bombardier, the standard, two-class seating capacity of the 737-800 is 162. Petitioner’s Postconference Brief at 10; Conference Tr. at 185 (Aranoff).

⁴¹ Petitioner’s Postconference Brief at 10.

⁴² Petitioner’s Postconference Brief at 10; Conference Tr. at 185 (Aranoff); Airbus Family Figures, EDIS Doc No. 613728. Airbus produced the A321 domestically during the period of investigation, and plans to produce the smaller A320 domestically. CR at I-5 n.8; PR at I-4 n.8.

⁴³ Petitioner’s Postconference Brief at 11-12; Bombardier’s Postconference Brief at 17-18; Delta’s Postconference Brief at 16.

According to Delta, the type of single-aisle LCA flown on a given route is dictated primarily by “the right level of seat capacity” in order “to have seats available for our customers when they want to travel” while minimizing “empty seats,” which result in “higher per seat costs . . . a poorer return for our shareholders and generally, an increase in ticket prices for our customers.”⁴⁴ Given this, the relatively lower seat counts of 100- and 150-seat LCA as compared to other single-aisle LCA would generally limit their use to routes with relatively lower demand per flight.⁴⁵

Both sides also agree that the Boeing 737-700 and MAX 7 differ from larger single-aisle LCA in that the 737-700 and MAX 7 are ideally suited for takeoff and landing at airports characterized by shorter runways and higher altitudes.⁴⁶ According to Boeing, there are *** such airports in the United States.⁴⁷

Both responding domestic LCA producers reported that 100- to 150-seat LCA were *** comparable to other single-aisle LCA in terms of physical characteristics and uses.⁴⁸ *** responding U.S. importers/purchasers reported that 100- to 150-seat LCA were *** comparable to other single-aisle LCA in terms of physical characteristics and uses, while *** reported that they were *** comparable in terms of this factor.⁴⁹

Manufacturing Facilities, Production Processes and Employees. Boeing assembles all single-aisle LCA, including 100- to 150-seat LCA, on the same production lines in Renton, Washington, with fuselages produced in Wichita, Kansas, and additional fabrication and production processes performed at eight other facilities across the country.⁵⁰ Boeing also cross-trains its employees at the Renton facility to produce all variants of the 737.⁵¹

According to Boeing, employees must be cross-trained to produce different variants of the 737 because each variant requires specialized tooling, different wiring and wire runs, different joins, and different production processes for landing gears.⁵² Boeing reported that ***.⁵³ Nevertheless, Boeing asserts that the specialized production processes and equipment

⁴⁴ Conference Tr. at 169-71 (Esposito); *see also* Delta’s Postconference Brief at 16.

⁴⁵ *See* Conference Tr. at 34-35 (Nickelsburg), 78-79 (Anderson), 169-74 (Esposito).

⁴⁶ Petitioner’s Postconference Brief at 18-19; Conference Tr. at 34 (Nickelsburg), 183 (May).

⁴⁷ Petitioner’s Postconference Brief at 12.

⁴⁸ CR at I-18; PR at I-13; CR/PR at Table I-2. A U.S. producers’ questionnaire response was received from Airbus Americas Inc. (“Airbus Americas”), ***. CR at I-5 n.8; PR at I-4 n.8. Airbus Americas’ U.S. manufacturing facility in Mobile, Alabama began production in July 2015 and is equipped to build the A319, A320, and A321 models. *Id.* It has delivered 27 A321 units thus far and will begin production of A320 units, both of which are not within the scope of these investigations. *Id.* Airbus produces 100- to 150-seat LCA, the 319ceo and 319 neo, in the European Union and China, and ***. CR at I-13, II-10; PR at I-10, II-6.

⁴⁹ CR at I-19; PR at I-13; CR/PR at Table I-2.

⁵⁰ CR at I-13-14; PR at I-10; Conference Tr. at 60 (Conner).

⁵¹ Conference Tr. at 149 (Conner).

⁵² Conference Tr. at 62, 136 (Conner); Petitioner’s Postconference Brief at 13. The 737 MAX 7 shares some tooling with the 737-700 and other tooling with the 737 MAX 8 and 737 MAX 9. Conference Tr. at 136 (Conner).

⁵³ Petitioner’s Postconference Brief at A-6-7.

used to produce each variant of the 737, including the 737-700 and MAX 7, mean that switching production from one variant to another imposes high “learning curve” costs.⁵⁴ To minimize such inefficiencies, Boeing prefers to produce the 737-700 and MAX 7, as well as other 737 variants, in blocks of five or ten planes.⁵⁵

Boeing reported that 100- to 150-seat LCA were *** manufactured in the same facilities with the same production processes and employees.⁵⁶ When asked about the extent to which 100- to 150-seat LCA are manufactured in the same facilities with the same production processes and employees as other single-aisle LCA, two responding U.S. importers/purchasers reported ***, two reported ***, and one reported ***.⁵⁷

Channels of Distribution. All parties agree that all domestically produced single-aisle LCA are sold through the same channels of distribution, from Boeing to airlines and leasing companies.⁵⁸

Interchangeability. The record suggests that there are economic limitations on the interchangeability of 100- to 150-seat LCA and larger single-aisle LCA on the same routes; that is, flights between the same airports, at the same time of day, day of the week, and season.⁵⁹ As discussed above, airlines allocate planes to specific routes based on anticipated seat demand, seeking to minimize empty seats by utilizing planes no larger than necessary to accommodate seat demand.⁶⁰ For this reason, airlines would avoid using 100- to 150-seat LCA on routes where seat demand exceeds their limited seating capacity.⁶¹ Conversely, airlines would avoid using a larger single-aisle LCA on routes with seat demand commensurate with a 100- to 150-seat LCA because doing so might result in empty seats, higher costs per seat, and lower profits.⁶² For example, Delta divides its fleet into six categories based on seat count, and assigns aircraft from the “small-gauge narrowbody mainline aircraft” category, with 110-130

⁵⁴ CR at I-20; PR at I-14; Conference Tr. at 61-62 (Conner). The parties describe the process of lowering the marginal production cost of a particular LCA model through the experience of building multiple copies of the model as moving down the “learning curve.” CR at V-8 n.18; PR at 3-4 n.18; Conference Tr. at 45-46, 92, 131 (Anderson), 157, 196 (Mullot).

⁵⁵ Conference Tr. at 61-62.

⁵⁶ CR at I-21; PR at I-14.

⁵⁷ CR at I-22; PR at I-14; CR/PR at Table I-2.

⁵⁸ CR at I-22-23; PR at I-15; CR/PR at Table I-2; Petitioner’s Postconference Brief at 14.

⁵⁹ Seat demand on a given route between airports will vary based on the time of day, day of the week, and season. Conference Tr. at 169 (Esposito).

⁶⁰ Petitioner’s Postconference Brief at 11-12; Bombardier’s Postconference Brief at 17-18; Delta’s Postconference Brief at 16.

⁶¹ Conference Tr. at 170 (Esposito) (“Ideally, we want to have seats available for our customers when they want to travel, so we try to ensure that the aircraft assigned to that particular mission of the early evening flight, for example, is large enough to accommodate expected demand. This, of course, goes to our bottom line. The more seats we sell, generally speaking, the better our revenues, but it also meets the needs of our customers.”).

⁶² Conference Tr. at 170 (Esposito) (“But if the plane is too big for the mission, we may well have to fly with empty seats or not offer flights to that market at all. Flying with empty seats means a higher per seat costs which means a poorer return for our shareholders and generally, an increase in ticket prices for our customers.”).

seats, to different routes than planes from the “medium gauge narrowbody mainline aircraft” category, with 150-160 seats.⁶³

Despite evidence that there are economic limitations on interchangeability between different types of single-aisle LCA, other information on the record indicates a degree of interchangeability between 100- to 150-seat LCA and larger single-aisle LCA. As discussed above, all single-aisle LCA can be configured to transport 100 or more passengers and cargo at least 2,900 nautical miles.⁶⁴ United, Delta, and Southwest reported that larger aircraft could substituted for 100- to 150-seat LCA on *** percent of routes.⁶⁵ There is also evidence that while interchangeability may be limited in comparisons of the largest single-aisle LCA with 100- to 150-seat LCA, there is a greater degree of interchangeability with the smallest out-of-scope single-aisle LCA.⁶⁶

Both responding domestic LCA producers and six of eight responding importers/purchasers reported that 100- to 150-seat LCA were *** interchangeable with larger single-aisle LCA.⁶⁷ Two other responding U.S. importers/purchasers reported that 100- to 150-seat LCA were *** interchangeable, respectively, with larger single-aisle LCA.⁶⁸ U.S. importers/purchasers reported that larger single-aisle LCA can sometimes or frequently be substituted for 100- to 150-seat LCA.⁶⁹

Producer and Customer Perceptions. The record provides mixed evidence regarding whether producers perceive differences between 100- to 150-seat LCA and larger single-aisle

⁶³ Delta’s Postconference Brief at 16-19; Conference Tr. at 169-74 (Esposito). Delta uses a “step function” to organize its fleet into six “categories” according to seating capacity, including (1) “single-class regional jets” with 50 seats; (2) “two-class regional jets” with up to 76 seats; (3) “small-gauge narrowbody mainline aircraft” with 110-130 seats, including the A319; (4) “medium gauge narrowbody mainline aircraft” with 150-160 seats, including the 737-800; (5) “large-gauge narrowbody mainline aircraft” with 180 seats or more; and (6) “larger widebody (*i.e.*, dual aisle) mainline aircraft” with over 200 seats. Delta’s Postconference Brief at 18-19. Delta allocates planes from the appropriate category to a particular route based on the “mission profile” of the route, which is defined so as to “maximize its aircraft utilization” and “avoid flying with empty seats.” *Id.* at 16-18. Delta’s “small-gauge narrowbody mainline aircraft” category, and an unnamed subcategory comprising 100-110 seat LCA, correspond to the scope of the investigations. See Conference Tr. at 171 (Esposito). The domestically produced aircraft in Delta’s “medium gauge narrowbody mainline aircraft” category, the Boeing 737-800, is out-of-scope.

⁶⁴ Conference Tr. at 185 (Aranoff), Bombardier’s Conference Exhibit 4.

⁶⁵ CR at II-23-24; PR at II-15. Although ***. See Importer/Purchaser Questionnaire Response of *** at 27.

⁶⁶ *** reported that while 200- to 300-seat aircraft are not generally substitutable for 100- to 150-seat LCA, other larger single-aisle aircraft (such as the Boeing 737-800) can be substituted for 100- to 150-seat LCA when the larger aircraft takes over a route with high demand and reduces the number of trip frequencies. CR at II-22; PR at II-14.

⁶⁷ CR at I-19-20; PR at I-13-14; CR/PR at Table I-2.

⁶⁸ CR at I-20; PR at I-14; CR/PR at Table I-2.

⁶⁹ CR/PR at Table II-3.

LCA. An internal Boeing presentation, unrelated to these investigations, stated that the ***.⁷⁰
⁷¹ However, Boeing markets the 737-700 and MAX 7 with other 737 variants as the “737 family,” emphasizing the benefits of the commonalities between 737 variants.⁷²

Customer perceptions are also mixed regarding whether there are differences between 100- to 150-seat LCA and larger single-aisle LCA. As discussed earlier, Delta divides its fleet into categories based on seat count, with 100- to 150-seat LCA categorized separately from out-of-scope single-aisle LCA. Delta categorizes in-scope LCA as “small-gauge narrowbody mainline aircraft” with 110-30 seats and possibly a new 100-seat category for the CS100, while grouping out-of-scope single-aisle LCA into the “medium” (150-60 seats) and “large gauge narrowbody mainline aircraft” (over 180 seats) categories.⁷³ However, Delta also states that customers perceive the entire 737 family as a continuum product, pointing to Southwest Airlines’ website, which addresses individual model characteristics while treating them as a single family of aircraft.⁷⁴ ***.⁷⁵

Five of seven responding importers/purchasers reported that the 737-700 and MAX 7 were *** comparable to other single-aisle LCA in terms of producer and customer perceptions; one importer/purchaser stated that these models were fully comparable while another stated that these models were never comparable.⁷⁶

Price. Both sides agree that larger single-aisle LCA are priced higher than 100- to 150-seat LCA, reflective of differences in the size and technological complexity of the aircraft.⁷⁷ There is no overlap between Boeing’s list prices for 100- to 150-seat LCA and larger single-aisle LCA, with a 26-29 percent gap between the highest-priced 100- to 150-seat LCA and the lowest-priced larger single-aisle LCA.⁷⁸ However, the list price for the Boeing 737 MAX 7 is closer in value to the list price for the Boeing 737-800 than it is to the 737-700.⁷⁹ With respect to sales

⁷⁰ Petitioner’s Postconference Brief at 6; Petition, Exhibit 96. Airbus Americas, which does not produce 100- to 150-seat LCA but does produce other single-aisle LCA, reported that ***.” Domestic Producers’ Questionnaire of Airbus at Question V-1(b). Domestic Producers’ Questionnaire of Airbus at Question V-1(b).

⁷¹ Chairman Schmidlein and Commissioner Williamson note that although Bombardier is not a U.S. producer, its marketing materials and investor presentations indicate that the C Series competes in the “100-150 seat market segment” with the Boeing 737-700 and MAX 7, but not with larger single-aisle LCA such as the 737 MAX 8 and MAX 9. Petition at 34 n.106, Exhibits 48, 81; Petitioner’s Postconference Brief at 7, Exhibit 1. This suggests that the U.S. market recognizes 100- to 150-seat LCA to be a distinct segment of the broader LCA market.

⁷² Bombardier’s Postconference Brief at 12, Exhibits 1 and 7; CR at VI-2; PR at VI-1.

⁷³ Delta’s Postconference Brief at 16-19; Conference Tr. at 169-74 (Esposito).

⁷⁴ Delta’s Postconference Brief at 13.

⁷⁵ Importer/purchaser Questionnaire of *** at 29.

⁷⁶ CR at I-23; PR at I-15; CR/PR at Table I-2.

⁷⁷ See Petitioner’s Postconference Brief at 14-15; Bombardier’s Postconference Brief at 14.

⁷⁸ Petitioner’s Postconference Brief at 14, Exhibit 12; CR at I-25; PR at I-16.

⁷⁹ Petitioner’s Postconference Brief at 14, Exhibit 12; CR at I-25; PR at I-16.

prices, there has historically been a *** percent gap between Boeing's prices on sales of 100- to 150-seat LCA and its prices on sales of larger single-aisle LCA.⁸⁰

One domestic producer reported that the prices of 100- to 150-seat LCA are *** comparable to the prices of other single-aisle LCA, while another producer reported that these prices are not at all comparable.⁸¹ Four of seven responding importers/purchasers reported that the prices of 100- to 150-seat LCA are *** comparable to the prices of other single-aisle LCA, while two reported that these prices were *** comparable and one stated that these prices were *** comparable.⁸²

Conclusion. When considering whether to include certain out-of-scope merchandise in the definition of the domestic like product, the Commission compares domestically produced merchandise within the scope to the domestically produced merchandise outside of the scope under its six like product factors to determine if a clear dividing line separates in-scope merchandise from the out-of-scope merchandise.⁸³ As discussed above, the record in the preliminary phase of the investigations indicates that there are both similarities and distinctions between the domestically produced 100- to 150-seat LCA within the scope and larger single-aisle LCA outside the scope. For purposes of the preliminary determinations, we define the like product to be coextensive with in-scope LCA, and thus limited to the Boeing 737-700 and MAX 7. In any final phase of the investigations, we intend to investigate further the appropriate definition of the domestic like product.

IV. Domestic Industry

The domestic industry is defined as the domestic "producers as a whole of a domestic like product, or those producers whose collective output of a domestic like product constitutes a major proportion of the total domestic production of the product."⁸⁴ In defining the domestic industry, the Commission's general practice has been to include in the industry producers of all domestic production of the like product, whether toll-produced, captively consumed, or sold in the domestic merchant market.

There are no domestic industry issues in these investigations.⁸⁵ Accordingly, we define the domestic industry as the only domestic producer of 100- to 150-seat LCA: Boeing.

⁸⁰ CR at I-24; PR at I-16. Boeing's U.S. shipments of 100- to 150-seat LCA during the period of investigation were limited to ***, and were therefore not comparable to its U.S. shipments of larger single-aisle LCA during the period. *Id.* at I-25.

⁸¹ CR at I-25; PR at I-16.

⁸² CR at I-25; PR at I-16; CR/PR at Table I-2.

⁸³ See *Large Residential Washers from China*, Inv. No. 731-TA-1306, USITC Pub. 4591 (Feb. 2016) at 9-10 & n.48; *Large Residential Washers from Korea and Mexico*, Inv. Nos. 701-TA-488, 731-TA-1199-1200 (Final), USITC Pub. 4378 at 6 (Feb. 2013) at 8.

⁸⁴ 19 U.S.C. § 1677(4)(A).

⁸⁵ No domestic producer is related to an exporter or importer of the subject merchandise, see CR at III-1 n.1; PR at III-1 n.1; CR/PR at Table III-1, and ***. CR at III-22; PR at III-7. Accordingly, there are no related party issues in these investigations.

V. Negligible Imports

Pursuant to Section 771(24) of the Tariff Act, imports from a subject country of merchandise corresponding to a domestic like product that account for less than 3 percent of all such merchandise imported into the United States during the most recent 12 months for which data are available preceding the filing of the petition shall be deemed negligible.⁸⁶ The statute also provides that, even if subject imports are found to be negligible for purposes of present material injury, they shall not be treated as negligible for purposes of a threat analysis should the Commission determine that there is a potential that subject imports from the country concerned will imminently account for more than 3 percent of all such merchandise imported into the United States.⁸⁷

In the preliminary phase of these investigations, there were no subject imports during the period of investigation, including the most recent 12-month period preceding the filing of the petition for which data are available.⁸⁸ Consequently, we find that subject imports are negligible for purposes of present material injury.⁸⁹

We next assess whether subject imports have the potential to imminently exceed the 3 percent statutory threshold for purposes of our threat analysis.⁹⁰ The record indicates that

⁸⁶ 19 U.S.C. §§ 1671b(a), 1673b(a), 1677(24)(A)(i), 1677(24)(B); *see also* 15 C.F.R. § 2013.1 (developing countries for purposes of 19 U.S.C. § 1677(36)).

⁸⁷ 19 U.S.C. 1677 § (24)(A)(iv).

⁸⁸ CR/PR at Tables IV-2-3.

⁸⁹ Uruguay Round Agreements Act Statement of Administrative Action (“SAA”), H.R. Rep. No. 103-316, vol. I at 856 (1994) (“{T}he Commission will not make a material injury determination concerning . . . imports {that} are currently negligible.”). Petitioner does not contend that there is reasonable indication of material injury by reason of subject imports.

⁹⁰ The GOC argues that the statute and the SAA preclude the Commission from finding that subject imports will imminently exceed the 3 percent threshold. *See* GOC’s Postconference Brief at 4-11. Under the statute and SAA, the GOC argues, the Commission may not find that subject imports will imminently exceed the 3 percent threshold if there were no subject imports during the most recent 12-month period preceding the petition for which data are available, and if subject imports are not likely to exceed the threshold within one or two months after the petition. *Id.* at 4-6, 10 (citing SAA at 856).

We disagree. The statute makes clear that the Commission may base an affirmative threat determination on “sales (or the likelihood of sales) of {subject} merchandise” or “sales for importation,” which refer to sales of subject imports for importation in the future. 19 U.S.C. §§ 1671(a)(2), 1673(a)(2), 1677(7)(F)(i); *see also* H.R. Rep. No. 98-725, 98th Cong. 2nd Sess., at 11 (1984). Indeed, the Commission has previously found subject imports from a country non-negligible for threat purposes based exclusively on sales for future importation, despite the absence of subject imports from the country during the most recent 12-month period preceding the petition for which data were available. *Engineered Process Gas Turbo-Compressor Systems from Japan*, Inv. No. 731-TA-748 (Preliminary), USITC Pub. 2976 (July 1996) at 13.

Nor does the provision of the statute addressing negligibility in threat analysis limit the “imminent” period to one to two months, as the GOC argues. The statute does not define the term “imminent,” and the U.S. Court of International Trade has held that the “imminent” time frame can constitute likely events one to two years in the future, and can vary in length depending on an
(Continued...)

Delta is scheduled to import 15 CS100s from Canada in 2018, beginning in April of that year, pursuant to its binding order for 75 CS100s.⁹¹ Respondents concede that these importations will occur “within the period of time that the Commission normally considers imminent.”⁹² With no projected deliveries of nonsubject imports in 2018, subject imports are likely to represent 100 percent of all imports of 100- to 150-seat LCA that year.⁹³ Given this, we find that subject imports from Canada are non-negligible for threat purposes because they will imminently exceed 3 percent of all imports of 100- to 150-seat LCA.

VI. Reasonable Indication of Threat of Material Injury by Reason of Subject Imports

A. Legal Standard

1. In General

In the preliminary phase of antidumping and countervailing duty investigations, the Commission determines whether there is a reasonable indication that an industry in the United States is materially injured or threatened with material injury by reason of the imports under investigation.⁹⁴ In making this determination, the Commission must consider the volume of subject imports, their effect on prices for the domestic like product, and their impact on domestic producers of the domestic like product, but only in the context of U.S. production

(...Continued)

assessment of the differing circumstances for different products and industries. *Co-Steel Raritan, Inc. v. U.S. Int’l Trade Comm’n*, 31 CIT 58, 66-67 (2007); *Co-Steel Raritan, Inc. v. U.S. Int’l Trade Comm’n*, 29 CIT 562, 570-71 (2005); see also *Asociacion de Prod. de Salmon v Trucha de Chile AG v. U.S. Int’l Trade Comm’n*, 180 F. Sup. 2d 1360, 1371 (Ct. Int’l Trade 2002).

Contrary to the GOC’s suggested interpretation of the statute, the SAA states that in analyzing negligibility for threat purposes “the Commission will examine ‘actual’ as well as ‘potential’ import volumes,” emphasizing that sales for future importation are relevant to the Commission’s analysis. SAA at 856. The passages of the SAA highlighted by the GOC are merely illustrative of the analysis contemplated by the negligibility for threat provision, as clear from Congress’s use of the words “may” and “for example,” and do not limit the Commission’s discretion. *Id.* On the contrary, the statute directs the Commission to base its analysis of negligibility for threat on “reasonable estimates on the basis of available statistics,” 19 U.S.C. § 1677(24)(C), and the SAA stresses that nothing in the URAA is “intended to limit the Commission’s ability to use reasonable estimates in calculating whether import volumes are negligible.” SAA at 857. Thus, the Commission has flexibility under the statute to analyze negligibility for threat purposes under the specific facts of a given investigation.

⁹¹ CR at VII-9; PR at VII-5; CR/PR at Table VII-5.

⁹² Conference Tr. at 223 (Aranoff).

⁹³ CR at IV-17; PR at IV-6.

⁹⁴ 19 U.S.C. §§ 1671b(a), 1673b(a). The Trade Preferences Extension Act of 2015, Pub. L. 114-27, amended the provisions of the Tariff Act pertaining to Commission determinations of reasonable indication of material injury and threat of material injury by reason of subject imports in certain respects. We have applied these amendments here.

operations.⁹⁵ The statute defines “material injury” as “harm which is not inconsequential, immaterial, or unimportant.”⁹⁶ In assessing whether there is a reasonable indication that the domestic industry is materially injured by reason of subject imports, we consider all relevant economic factors that bear on the state of the industry in the United States.⁹⁷ No single factor is dispositive, and all relevant factors are considered “within the context of the business cycle and conditions of competition that are distinctive to the affected industry.”⁹⁸

Although the statute requires the Commission to determine whether there is a reasonable indication that the domestic industry is “materially injured by reason of” unfairly traded imports,⁹⁹ it does not define the phrase “by reason of,” indicating that this aspect of the injury analysis is left to the Commission’s reasonable exercise of its discretion.¹⁰⁰ In identifying a causal link, if any, between subject imports and material injury to the domestic industry, the Commission examines the facts of record that relate to the significance of the volume and price effects of the subject imports and any impact of those imports on the condition of the domestic industry. This evaluation under the “by reason of” standard must ensure that subject imports are more than a minimal or tangential cause of injury and that there is a sufficient causal, not merely a temporal, nexus between subject imports and material injury.¹⁰¹

In many investigations, there are other economic factors at work, some or all of which may also be having adverse effects on the domestic industry. Such economic factors might include nonsubject imports; changes in technology, demand, or consumer tastes; competition among domestic producers; or management decisions by domestic producers. The legislative history explains that the Commission must examine factors other than subject imports to ensure that it is not attributing injury from other factors to the subject imports, thereby inflating an otherwise tangential cause of injury into one that satisfies the statutory material

⁹⁵ 19 U.S.C. § 1677(7)(B). The Commission “may consider such other economic factors as are relevant to the determination” but shall “identify each {such} factor ... {a}nd explain in full its relevance to the determination.” 19 U.S.C. § 1677(7)(B).

⁹⁶ 19 U.S.C. § 1677(7)(A).

⁹⁷ 19 U.S.C. § 1677(7)(C)(iii).

⁹⁸ 19 U.S.C. § 1677(7)(C)(iii).

⁹⁹ 19 U.S.C. §§ 1671b(a), 1673b(a).

¹⁰⁰ *Angus Chemical Co. v. United States*, 140 F.3d 1478, 1484-85 (Fed. Cir. 1998) (“{T}he statute does not ‘compel the commissioners’ to employ {a particular methodology}.”), *aff’d* 944 F. Supp. 943, 951 (Ct. Int’l Trade 1996).

¹⁰¹ The Federal Circuit, in addressing the causation standard of the statute, has observed that “{a}s long as its effects are not merely incidental, tangential, or trivial, the foreign product sold at less than fair value meets the causation requirement.” *Nippon Steel Corp. v. USITC*, 345 F.3d 1379, 1384 (Fed. Cir. 2003). This was re-affirmed in *Mittal Steel Point Lisas Ltd. v. United States*, 542 F.3d 867, 873 (Fed. Cir. 2008), in which the Federal Circuit, quoting *Gerald Metals, Inc. v. United States*, 132 F.3d 716, 722 (Fed. Cir. 1997), stated that “this court requires evidence in the record ‘to show that the harm occurred “by reason of” the LTFV imports, not by reason of a minimal or tangential contribution to material harm caused by LTFV goods.’” See also *Nippon Steel Corp. v. United States*, 458 F.3d 1345, 1357 (Fed. Cir. 2006); *Taiwan Semiconductor Industry Ass’n v. USITC*, 266 F.3d 1339, 1345 (Fed. Cir. 2001).

injury threshold.¹⁰² In performing its examination, however, the Commission need not isolate the injury caused by other factors from injury caused by unfairly traded imports.¹⁰³ Nor does the “by reason of” standard require that unfairly traded imports be the “principal” cause of injury or contemplate that injury from unfairly traded imports be weighed against other factors, such as nonsubject imports, which may be contributing to overall injury to an industry.¹⁰⁴ It is clear that the existence of injury caused by other factors does not compel a negative determination.¹⁰⁵

Assessment of whether material injury to the domestic industry is “by reason of” subject imports “does not require the Commission to address the causation issue in any particular way” as long as “the injury to the domestic industry can reasonably be attributed to the subject imports” and the Commission “ensure{s} that it is not attributing injury from other sources to

¹⁰² SAA at 851-52 (“{T}he Commission must examine other factors to ensure that it is not attributing injury from other sources to the subject imports.”); S. Rep. 96-249 at 75 (1979) (the Commission “will consider information which indicates that harm is caused by factors other than less-than-fair-value imports.”); H.R. Rep. 96-317 at 47 (1979) (“in examining the overall injury being experienced by a domestic industry, the ITC will take into account evidence presented to it which demonstrates that the harm attributed by the petitioner to the subsidized or dumped imports is attributable to such other factors;” those factors include “the volume and prices of nonsubsidized imports or imports sold at fair value, contraction in demand or changes in patterns of consumption, trade restrictive practices of and competition between the foreign and domestic producers, developments in technology and the export performance and productivity of the domestic industry”); *accord Mittal Steel*, 542 F.3d at 877.

¹⁰³ SAA at 851-52 (“{T}he Commission need not isolate the injury caused by other factors from injury caused by unfair imports.”); *Taiwan Semiconductor Industry Ass’n*, 266 F.3d at 1345. (“{T}he Commission need not isolate the injury caused by other factors from injury caused by unfair imports Rather, the Commission must examine other factors to ensure that it is not attributing injury from other sources to the subject imports.” (emphasis in original)); *Asociacion de Productores de Salmon y Trucha de Chile AG v. United States*, 180 F. Supp. 2d 1360, 1375 (Ct. Int’l Trade 2002) (“{t}he Commission is not required to isolate the effects of subject imports from other factors contributing to injury” or make “bright-line distinctions” between the effects of subject imports and other causes.); *see also Softwood Lumber from Canada*, Inv. Nos. 701-TA-414 and 731-TA-928 (Remand), USITC Pub. 3658 at 100-01 (Dec. 2003) (Commission recognized that “{i}f an alleged other factor is found not to have or threaten to have injurious effects to the domestic industry, *i.e.*, it is not an ‘other causal factor,’ then there is nothing to further examine regarding attribution to injury”), *citing Gerald Metals*, 132 F.3d at 722 (the statute “does not suggest that an importer of LTFV goods can escape countervailing duties by finding some tangential or minor cause unrelated to the LTFV goods that contributed to the harmful effects on domestic market prices.”).

¹⁰⁴ S. Rep. 96-249 at 74-75; H.R. Rep. 96-317 at 47.

¹⁰⁵ *See Nippon*, 345 F.3d at 1381 (“an affirmative material-injury determination under the statute requires no more than a substantial-factor showing. That is, the ‘dumping’ need not be the sole or principal cause of injury.”).

the subject imports.”¹⁰⁶ ¹⁰⁷ Indeed, the Federal Circuit has examined and affirmed various Commission methodologies and has disavowed “rigid adherence to a specific formula.”¹⁰⁸

The Federal Circuit’s decisions in *Gerald Metals*, *Bratsk*, and *Mittal Steel* all involved cases in which the relevant “other factor” was the presence in the market of significant volumes of price-competitive nonsubject imports. The Commission interpreted the Federal Circuit’s guidance in *Bratsk* as requiring it to apply a particular additional methodology following its finding of material injury in cases involving commodity products and a significant market presence of price-competitive nonsubject imports.¹⁰⁹ The additional “replacement/benefit” test looked at whether nonsubject imports might have replaced subject imports without any benefit to the U.S. industry. The Commission applied that specific additional test in subsequent cases, including the *Carbon and Certain Alloy Steel Wire Rod from Trinidad and Tobago* determination that underlies the *Mittal Steel* litigation.

Mittal Steel clarifies that the Commission’s interpretation of *Bratsk* was too rigid and makes clear that the Federal Circuit does not require the Commission to apply an additional test nor any one specific methodology; instead, the court requires the Commission to have “evidence in the record ‘to show that the harm occurred ‘by reason of’ the LTFV imports,’” and requires that the Commission not attribute injury from nonsubject imports or other factors to

¹⁰⁶ *Mittal Steel*, 542 F.3d at 877-78; see also *id.* at 873 (“While the Commission may not enter an affirmative determination unless it finds that a domestic industry is materially injured ‘by reason of’ subject imports, the Commission is not required to follow a single methodology for making that determination ... {and has} broad discretion with respect to its choice of methodology.”) citing *United States Steel Group v. United States*, 96 F.3d 1352, 1362 (Fed. Cir. 1996) and S. Rep. 96-249 at 75. In its decision in *Swift-Train v. United States*, 792 F.3d 1355 (Fed. Cir. 2015), the Federal Circuit affirmed the Commission’s causation analysis as comports with the Court’s guidance in *Mittal*.

¹⁰⁷ Commissioner Kieff does not join this paragraph or the following three paragraphs. He points out that the Federal Circuit, in *Bratsk*, 444 F.3d 1369, and *Mittal Steel*, held that the Commission is *required*, in certain circumstances when analyzing present material injury, to consider a particular issue with respect to the role of nonsubject imports, without reliance upon presumptions or rigid formulas. The Court has not prescribed a specific method of exposition for this consideration. *Mittal Steel* explains as follows:

What *Bratsk* held is that “where commodity products are at issue and fairly traded, price competitive, non-subject imports are in the market,” the Commission would not fulfill its obligation to consider an important aspect of the problem if it failed to consider whether non-subject or non-LTFV imports would have replaced LTFV subject imports during the period of investigation without a continuing benefit to the domestic industry. 444 F.3d at 1369. Under those circumstances, *Bratsk* requires the Commission to consider whether replacement of the LTFV subject imports might have occurred during the period of investigation, and it requires the Commission to provide an explanation of its conclusion with respect to that factor.

542 F.3d at 878.

¹⁰⁸ *Nucor Corp. v. United States*, 414 F.3d 1331, 1336, 1341 (Fed. Cir. 2005); see also *Mittal Steel*, 542 F.3d at 879 (“*Bratsk* did not read into the antidumping statute a Procrustean formula for determining whether a domestic injury was ‘by reason’ of subject imports.”).

¹⁰⁹ *Mittal Steel*, 542 F.3d at 875-79.

subject imports.¹¹⁰ Accordingly, we do not consider ourselves required to apply the replacement/benefit test that was included in Commission opinions subsequent to *Bratsk*.

The progression of *Gerald Metals*, *Bratsk*, and *Mittal Steel* clarifies that, in cases involving commodity products where price-competitive nonsubject imports are a significant factor in the U.S. market, the Court will require the Commission to give full consideration, with adequate explanation, to non-attribution issues when it performs its causation analysis.¹¹¹

The question of whether the material injury threshold for subject imports is satisfied notwithstanding any injury from other factors is factual, subject to review under the substantial evidence standard. Congress has delegated this factual finding to the Commission because of the agency's institutional expertise in resolving injury issues.¹¹²

2. Threat of Material Injury Factors

Section 771(7)(F) of the Tariff Act directs the Commission to determine whether the U.S. industry is threatened with material injury by reason of the subject imports by analyzing whether "further dumped or subsidized imports are imminent and whether material injury by reason of imports would occur unless an order is issued or a suspension agreement is accepted."¹¹³ The Commission may not make such a determination "on the basis of mere conjecture or supposition," and considers the threat factors "as a whole" in making its determination whether dumped or subsidized imports are imminent and whether material injury by reason of subject imports would occur unless an order is issued.¹¹⁴ In making our determination, we consider all statutory threat factors that are relevant to these investigations.¹¹⁵

¹¹⁰ *Mittal Steel*, 542 F.3d at 873 (quoting from *Gerald Metals*, 132 F.3d at 722), 875-79 & n.2 (recognizing the Commission's alternative interpretation of *Bratsk* as a reminder to conduct a non-attribution analysis).

¹¹¹ To that end, after the Federal Circuit issued its decision in *Bratsk*, the Commission began to present published information or send out information requests in the final phase of investigations to producers in nonsubject countries that accounted for substantial shares of U.S. imports of subject merchandise (if, in fact, there were large nonsubject import suppliers). In order to provide a more complete record for the Commission's causation analysis, these requests typically seek information on capacity, production, and shipments of the product under investigation in the major source countries that export to the United States. The Commission plans to continue utilizing published or requested information in the final phase of investigations in which there are substantial levels of nonsubject imports.

¹¹² *Mittal Steel*, 542 F.3d at 873; *Nippon Steel Corp.*, 458 F.3d at 1350, citing *U.S. Steel Group*, 96 F.3d at 1357; S. Rep. 96-249 at 75 ("The determination of the ITC with respect to causation is ... complex and difficult, and is a matter for the judgment of the ITC.").

¹¹³ 19 U.S.C. § 1677(7)(F)(ii).

¹¹⁴ 19 U.S.C. § 1677(7)(F)(ii).

¹¹⁵ These factors are as follows:

(I) if a countervailable subsidy is involved, such information as may be presented to it by the administering authority as to the nature of the subsidy (particularly as to whether the countervailable
(Continued...)

We have considered the appropriate time period for purposes of analyzing whether there is an imminent threat of material injury to a domestic industry by reason of subject imports. The statute does not define the term “imminent,” and the U.S. Court of International Trade has held that the “imminent” time frame can constitute likely events one to two years in the future,¹¹⁶ and can vary in length depending on an assessment of the differing circumstances for different products and industries.¹¹⁷ The Court has stressed that “no bright line test exists to determine when injury is imminent.”¹¹⁸

In the context of the conditions of competition distinctive to the 100- to 150-seat LCA market, discussed in section VI.B below, we focus our threat analysis on what is likely to transpire through 2019. During that period of time, as discussed in greater detail below, Bombardier is likely to compete with Boeing for sales of 100- to 150-seat LCA in the U.S.

(...Continued)

subsidy is a subsidy described in Article 3 or 6.1 of the Subsidies Agreement) and whether imports of the subject merchandise are likely to increase,

(II) any existing unused production capacity or imminent, substantial increase in production capacity in the exporting country indicating the likelihood of substantially increased imports of the subject merchandise into the United States, taking into account the availability of other export markets to absorb any additional exports,

(III) a significant rate of increase of the volume or market penetration of imports of the subject merchandise indicating the likelihood of substantially increased imports,

(IV) whether imports of the subject merchandise are entering at prices that are likely to have a significant depressing or suppressing effect on domestic prices and are likely to increase demand for further imports,

(V) inventories of the subject merchandise,

(VI) the potential for product-shifting if production facilities in the foreign country, which can be used to produce the subject merchandise, are currently being used to produce other products,

...

(VIII) the actual and potential negative effects on the existing development and production efforts of the domestic industry, including efforts to develop a derivative or more advanced version of the domestic like product, and

(IX) any other demonstrable adverse trends that indicate the probability that there is likely to be material injury by reason of imports (or sale for importation) of the subject merchandise (whether or not it is actually being imported at the time).

19 U.S.C. § 1677(7)(F)(i). To organize our analysis, we discuss the applicable statutory threat factors using the same volume/price/impact framework that applies to our material injury analysis. Statutory threat factors (I), (II), (III), (V), and (VI) are discussed in the analysis of subject import volume. Statutory threat factor (IV) is discussed in the analysis of subject import price effects. Statutory factors (VIII) and (IX) are discussed in the analysis of impact. Statutory factor (VII) concerning agricultural products is inapplicable to these investigations.

¹¹⁶ *Co-Steel Raritan, Inc. v. U.S. Int’l Trade Comm’n*, 29 CIT 562, 570-71 (2005).

¹¹⁷ *Co-Steel Raritan, Inc. v. U.S. Int’l Trade Comm’n*, 31 CIT 58, 66-67 (2007).

¹¹⁸ *Asociacion de Prod. de Salmon v Trucha de Chile AG v. U.S. Int’l Trade Comm’n*, 180 F. Sup. 2d 1360, 1371 (Ct. Int’l Trade 2002).

market, and Boeing's 737 MAX 7 is scheduled to enter service.¹¹⁹ Given lag times between orders and deliveries of at least two years, and frequently far longer, in the 100- to 150-seat LCA market, we recognize that orders placed in the imminent future may not result in deliveries of aircraft within the imminent future.¹²⁰ Nevertheless, Boeing and Bombardier plan their production of 100- to 150-seat LCA plan production years in advance based on order backlogs,¹²¹ and there is evidence that each producer's performance will be impacted significantly by orders received within the imminent future.¹²² In any final phase of these investigations, we intend to further explore whether orders for delivery that will occur beyond the imminent future may result in injury that can be considered imminent within the context of the threat provision of the statute.

B. Conditions of Competition and the Business Cycle

The following conditions of competition inform our analysis of whether there is a reasonable indication of threat of material injury by reason of subject imports.

1. Demand Conditions

The United States is the world's largest market for 100- to 150-seat LCA, and Boeing projects that the United States will account for *** percent of global demand for such aircraft over the next 20 years.¹²³ Demand for 100- to 150-seat LCA is influenced by several factors, including general economic growth, consumer demand for air travel on routes flown by 100- to 150-seat LCA, in-service fleet age, the operational strategies of individual purchasers, and the ongoing new product development cycle.¹²⁴ As in-service fleets approach the end of their useful lives after 20 years, airlines have the flexibility to extend their useful lives or replace them with new LCA, and airlines may also increase the size of their fleets by additions of new LCA.¹²⁵ Airlines also have the option of acquiring used and reconditioned 100- to 150-seat LCA,

¹¹⁹ See CR at III-14-17; PR at III-5. The 737 MAX 7 is scheduled to enter service in 2019. CR at VI-2; PR at VI-2.

¹²⁰ Both sides agree that the minimum lag time between order and delivery is 18 to 24 months, but that the average lag time is four to five years. CR at VII-12; PR at VII-6; Conference Tr. at 65 (Conner), 231 (Mitchell), 265 (Aranoff); Petitioner's Postconference Brief at 19; Bombardier's Postconference Brief at 42. The record also indicates that orders for 100- to 150-seat LCA typically schedule aircraft deliveries over a period of years. CR at VII-9; PR at VII-5.

¹²¹ See CR at II-25 n.65, III-4, VII-7; PR at II-15 n.65, III-2, VII-5.

¹²² See Conference Tr. at 26-27 (Conner) ("Boeing, Bombardier and Airbus are all introducing new models and competitions now will determine which models will succeed over the next 15 to 20 years and which will be dead in that marketplace."), 214 (Mullot). When asked at the conference if it is "important that Bombardier adhere to this schedule to make this program a financial success," a Bombardier official responded "it is very important" and "we are forced to achieve that rate." *Id.* at 214 (Mullot).

¹²³ CR at II-15 n.46; PR at II-9 n.46; Petitioner's Postconference Brief at 15-16.

¹²⁴ CR at II-14-16; PR at II-8-9; Petitioner's Postconference Brief at 18.

¹²⁵ CR at II-14-15; PR at II-8-9; Petitioner's Postconference Brief at 18.

which cost less to purchase but more to operate, but generally do so only to satisfy capacity needs that cannot be met by new LCA within the desired timeframe.¹²⁶ In Boeing's view, an airline will be more willing to purchase a new 100- to 150-seat LCA when pricing is perceived to be favorable, and uncertainty about the performance and reliability of a new aircraft design has declined.¹²⁷

Demand in the U.S. market is highly concentrated due to the consolidation of airlines and leasing companies into a few large purchasers.¹²⁸ For this reason, purchases of 100- to 150-seat LCA tend to be large, infrequent, and "lumpy," with individual orders in blocks of 50 aircraft, frequently delivered over multiple years, to capitalize on volume discounts.¹²⁹ According to Boeing, customers generally make purchase decisions at the conclusion of ***.¹³⁰ Responding purchaser/importers reported purchase processes ranging from formal requests for proposals and bids, to informal discussions or direct negotiations with one or more suppliers, to single sourcing of aircraft.¹³¹

During the period of investigation, apparent U.S. consumption of 100- to 150-seat LCA was *** units in 2014, *** units in 2015, *** units in 2016, and *** units in January-March 2017 as compared to *** units in January-March 2016.¹³² Projected apparent U.S. consumption, based on current firm orders, is *** units in 2017, *** units in 2018, *** units in 2019, *** units in 2020, and *** units in 2021.¹³³

Boeing attributes the low apparent U.S. consumption for 100- to 150-seat LCA during the period of investigation to the lingering effects of the global financial crisis; the large number of orders for 100- to 150-seat LCA placed during 2000-08 for delivery prior to 2014; purchasers postponing orders pending the introduction and validation of new models from Airbus, Boeing, and Bombardier; and the lumpiness of aircraft orders.¹³⁴ Boeing claims that demand for 100- to 150-seat LCA is likely to increase in the imminent future due to the advanced age of the 100- to 150-seat LCA fleets operated by U.S. airlines; increased consumer demand for more frequent flights and low-cost flights, which tend to be served by 100- to 150-seat LCA; and recent advances in the range and efficiency of such LCA.¹³⁵ Bombardier believes that demand for 100- to 110-seat LCA will be spurred by the high average age of such aircraft in U.S. fleets and by tight supplies of used aircraft in that size range.¹³⁶

¹²⁶ CR at II-3; PR at II-2.

¹²⁷ CR at II-21; PR at II-13; Petitioner's Postconference Brief at 18.

¹²⁸ Petitioner's Postconference Brief at 15-16; CR at II-5-6; PR at II-3-4.

¹²⁹ Petitioner's Postconference Brief at 15-16; CR at II-5-6; PR at II-3-4.

¹³⁰ CR at V-5; PR at V-2; Petition at 49.

¹³¹ CR at V-4-5; PR at V-2-3. Delta meets on a monthly basis with all major LCA manufacturers. Conference Tr. at 203 (May).

¹³² CR/PR at Table IV-13.

¹³³ CR/PR at Table VII-8. To consider what is likely to transpire through 2019, we have considered all evidence on the record, including projections through 2021.

¹³⁴ CR at III-11-12; PR at III-4.

¹³⁵ See CR at III-14-17; PR at III-5; Conference Tr. at 35-36 (Nickelsburg), 75 (Anderson); Petitioner's Postconference Brief at A-20-22, Exhibit 8 at 17.

¹³⁶ Bombardier's Postconference Brief at 18-19.

Boeing claims that the 100- to 150-seat LCA market is subject to positive and negative feedback cycles known as “commercial momentum.”¹³⁷ According to Boeing, a 100- to 150-seat LCA model gains commercial momentum from a major order in that such orders make additional orders more likely, as airlines tend to imitate one another and increased sales of the model contribute to higher residual values, more favorable financing terms, enhanced lifetime support, and reduced likelihood that the model will be discontinued prematurely.¹³⁸ A producer with commercial momentum is able to move down the learning curve more rapidly, thereby lowering its marginal cost of production and increasing its pricing flexibility to win additional orders.¹³⁹ Conversely, a producer that secures few orders for a new LCA design can experience a “downward spiral,” as lower production volume results in higher costs, less pricing flexibility, and dwindling sales.¹⁴⁰

Bombardier disputes the existence or importance of commercial momentum, stating that “***.”¹⁴¹ Five of six responding importers/purchasers reported that “prior domestic market sales” were not important to their purchasing decisions.¹⁴² Nevertheless, Delta claims that LCA producers must secure an initial large order for a new LCA design from a major airline, or “marquee customer,” as soon as possible after the launch of the new design in order to validate the design in the eyes of other potential customers and overcome their natural resistance to purchasing an unproven aircraft.¹⁴³ In any final phase of the investigations, we intend to further investigate the importance of commercial momentum in the U.S. market.

2. Supply Conditions

There are three suppliers of in-scope 100- to 150-seat LCA to the U.S. market: Airbus, Boeing, and Bombardier. During the period of investigation, Airbus accounted for *** U.S. commercial shipments of new 100- to 150-seat LCA and for *** to *** percent of apparent U.S. consumption, with Boeing accounting for the balance.¹⁴⁴ Based on current firm orders, Boeing’s projected share of the 100- to 150-seat LCA market will be *** in 2017 and 2018, *** percent in 2019, *** percent in 2020, and *** percent in 2021; Bombardier’s projected share will be *** in 2017, *** percent in 2018, *** percent in 2019, *** percent in 2020, and *** percent in 2021; and Airbus’s projected share will be *** in 2017, 2018, and 2019, *** percent in 2020, and *** percent in 2021.¹⁴⁵

¹³⁷ CR at V-10; PR at V-5.

¹³⁸ CR at V-10; PR at V-5; Petition at 50-51.

¹³⁹ CR at V-10; PR at V-5; Petition at 51.

¹⁴⁰ Petition at 51.

¹⁴¹ CR at V-10; PR at V-5.

¹⁴² CR/PR at Table II-4 (one responding importer/purchase ranked “prior domestic market sales” as very important to its purchasing decisions); CR at V-10-11; PR at V-5.

¹⁴³ Delta’s Postconference Brief at 30-31; CR at V-2; PR at V-2.

¹⁴⁴ CR/PR at Tables IV-11, 13. ***. *Id.* at Table III-8.

¹⁴⁵ CR/PR at Table VII-8.

Boeing launched the 737-700 in 1993.¹⁴⁶ It entered service in 1997, and remains in production.¹⁴⁷ Boeing launched its replacement, the 737 MAX 7, in 2011, and the 737 MAX 7 is scheduled to enter service in 2019.¹⁴⁸ Like the 737-700, the 737 MAX 7 will be produced on the same assembly lines as other 737 variants in Renton, Washington.¹⁴⁹ Bombardier argues that Boeing's capacity to produce the 737 family, including the 737 MAX 7, is "maxed out" for the next eight years, with an order backlog of 4,506 planes,¹⁵⁰ and quotes Boeing's CEO as stating that the 737 family "skyline" is "oversold through the end of the decade."¹⁵¹ Delta claims that it was told by Boeing that the 737 family was effectively "sold out" until 2020, which conflicted with Delta's need for deliveries of 100-110 seat LCA starting in 2018.¹⁵² Disputing that its production of 100- to 150-seat LCA is capacity-constrained, Boeing claims that, with enough orders, it could increase the rate of production of 100- to 150-seat LCA to match the higher level of orders within two years.¹⁵³ In any final phase of the investigations, we intend to further investigate whether capacity limitations constrain Boeing's ability to compete for orders in the 100- to 150-seat LCA market.

As a relatively new entrant in the 100- to 150-seat LCA market, Bombardier claims to be facing a "steep learning curve" and continuing delays in production and deliveries, due to disruptions in the supply of components.¹⁵⁴ Bombardier conceived of the C Series in 2004, completed an initial design in 2006, officially launched the C Series with a revised design in 2008, received its first order from Lufthansa in 2009, received FAA certification in 2016, and delivered in the EU the first C Series LCA that same year.¹⁵⁵ Bombardier produced a chart in 2016 titled "production ramp up well underway" with production goals for each year of the 2016-20 period,¹⁵⁶ and these goals are reflected in Bombardier's projected capacity for those years.¹⁵⁷ Bombardier projects capacity of *** aircraft in 2017, *** in 2018, *** in 2019, and *** in 2020 and 2021, but production based on current orders is *** aircraft in 2017, *** in 2018, *** in 2019, *** in 2020, and *** in 2021, which is under capacity.¹⁵⁸ When asked at the conference if it is "important that Bombardier adhere to this {production ramp up} schedule to

¹⁴⁶ Petition at 29.

¹⁴⁷ Petition at 29.

¹⁴⁸ Petition at 29-30.

¹⁴⁹ CR at I-13-14; PR at I-10; Conference Tr. at 60 (Conner).

¹⁵⁰ CR at II-10; PR at II-6; Bombardier's Postconference Brief at 33.

¹⁵¹ Bombardier's Postconference Brief at 33.

¹⁵² CR at V-16 n.32; PR at V-7 n.32; Conference Tr. at 220-1 (May); Delta's Postconference Brief at 34.

¹⁵³ Conference Tr. at 118 (Anderson), 119-20 (Conner); Petitioner's Postconference Brief at A-18. Boeing also claims that it often reschedules deliveries to other customers to ensure that a major order from a major customer is filled within the required timeframe. Conference Tr. at 119 (Conner). Neither Boeing nor Bombardier maintain inventories of 100- to 150-seat LCA. CR at II-9, 13; PR at II-6, 8.

¹⁵⁴ Bombardier's Postconference Brief at 20.

¹⁵⁵ Bombardier's Postconference Brief at 20; CR at II-10; PR at II-1-2.

¹⁵⁶ Petition at Exhibit 108.

¹⁵⁷ CR/PR at Table VII-4.

¹⁵⁸ CR/PR at Table VII-4.

make this program a financial success,” a Bombardier official responded “it is very important” and “we are forced to achieve that rate.”¹⁵⁹ Boeing contends that Bombardier must achieve these goals for the C Series program to achieve the learning economies and economies of scale necessary for the program to remain financially viable.¹⁶⁰

100- to 150-seat LCA are low-volume, high-value products that require billions of dollars in capital to develop and produce.¹⁶¹ Bombardier developed the C Series as a “clean sheet” design, meaning that it was not derived from an existing model.¹⁶² Although Bombardier initially estimated that development of the C Series would cost \$2.1 billion, the program ultimately cost \$5.4 billion due to cost overruns, and reportedly drove Bombardier to the brink of bankruptcy.¹⁶³

Because the 737 MAX 7 is derived from the 737-700, with new engines and other enhancements shared with the 737 MAX 8 and 737 MAX 9, Boeing’s cost to develop the 737 MAX 7 will be much less than the cost to develop a clean sheet design.¹⁶⁴ Boeing reported \$*** in research and development expenses related to the 737 MAX 7 during the 2011-16 period.¹⁶⁵ Boeing finances the development of new 100- to 150-seat LCA using profits generated by sales of current models and pre-delivery payments made by purchasers on orders of the models under development, which typically account for 30 percent of the gross purchase price.¹⁶⁶

Due to the significant lag time between order and delivery in the 100- to 150-seat market, typically ranging from two to five years, producers seek orders for new 100- to 150-seat LCA designs years in advance of the first deliveries.¹⁶⁷ Producers schedule production of 100- to 150-seat LCA years in advance based on backlogs of existing orders.¹⁶⁸ Orders are particularly critical during the design and development phase of a new 100- to 150-seat LCA model, when costs are highest and the learning curve steepest, because such orders validate the design in the eyes of other potential customers and generate a stream of pre-delivery

¹⁵⁹ Conference Tr. at 214 (Mullot).

¹⁶⁰ Petitioner’s Postconference Brief at 32.

¹⁶¹ CR at II-1; PR at II-1.

¹⁶² CR at II-2; PR at II-1.

¹⁶³ Petition at 8, Exhibits 15-16, 23, 25 (newspaper article quoting Bombardier’s CEO as stating that Bombardier “was on the brink of bankruptcy in 2015” and “in a very precarious position”).

¹⁶⁴ See Petitioner’s Postconference Brief at A-19. According to Boeing, the 737 MAX 7’s enhancements allow it to fly 400 to 500 nautical miles further while burning 20 percent less fuel than the 737-700. *Id.*

¹⁶⁵ CR/PR at Table VI-4.

¹⁶⁶ CR at III-20; PR at III-7; Petitioner’s Postconference Brief at 18; Conference Tr. at 36-37 (Nickelsburg), 167 (Mitchell).

¹⁶⁷ Both sides agree that the minimum lag time between order and delivery is 18 to 24 months, but that the average lag time is four to five years. CR at VII-12; PR at VII-6; Conference Tr. at 65 (Conner), 231 (Mitchell), 265 (Aranoff); Petitioner’s Postconference Brief at 19; Bombardier’s Postconference Brief at 42. The record also indicates that orders for 100- to 150-seat LCA typically schedule aircraft deliveries over a period of years. CR at VII-9; PR at VII-5.

¹⁶⁸ See CR at II-25 n.65, III-4, VII-7; PR at II-15 n.65, III-2, VII-5.

payments.¹⁶⁹ Because LCA producers plan production years in advance, strong orders for a new design enable the producer to move down the learning curve faster, reducing the marginal cost of production, accelerating achievement of the break even point, and increasing the pricing flexibility necessary to secure additional orders.¹⁷⁰ In explaining why achieving Bombardier’s “production ramp up” goals during the 2017-20 period is “very important” financially, a Bombardier official stated that “{i}t’s numbers that we guide for the markets,” indicating that the rate at which Bombardier is able to increase production of the C Series will influence the producer’s financial performance.¹⁷¹ Conversely, according to Boeing, weak orders for a new design hobble learning economies, increase marginal costs, and constrain the producer’s ability to offer competitive pricing, potentially triggering an irreversible “downward spiral” of higher marginal costs, higher prices, and weaker orders.¹⁷²

3. Substitutability and Other Conditions

Based on the record of the preliminary phase of the investigations, we find that there is a moderate to high degree of substitutability between subject imports and domestically produced 100- to 150-seat LCA.¹⁷³ *** responding domestic LCA producers and four of six responding U.S. importers/purchasers reported that subject imports were always interchangeable with 100- to 150-seat LCA produced in the United States.¹⁷⁴ Although petitioner and respondents agree that the 737-700 and 737 MAX 7 compete with the CS300,¹⁷⁵ there is some evidence that the higher seating capacity of the 737-700 and 737 MAX 7 limits competition between those models and the CS100.¹⁷⁶ Nevertheless, United ***, and placed an order for 737-700s ***.¹⁷⁷

We further find that price is an important factor in purchasing decisions for 100- to 150-seat LCA, although non-price factors are also important. Most responding purchaser/importers considered the following factors to be very important to their 100- to 150-seat LCA purchasing

¹⁶⁹ Petitioner’s Postconference Brief at 19; Conference Tr. at 92-93 (Anderson), 93 (Conner), 131 (Anderson); Delta’s Postconference Brief at 30-31; CR at II-4, V-2; PR at II-3, V-1-2.

¹⁷⁰ CR at V-7-8; PR at V-3-4; Petitioner’s Postconference Brief at 19; Conference Tr. at 92-93 (Anderson), 93 (Conner), 131 (Anderson) (“And the way to get down the learning curve is to have solid deliveries over the first five years. The faster you can get down the learning curve, the quicker you’re gonna achieve, break even and the greater the likelihood the program overall be a financial success.”).

¹⁷¹ Conference Tr. at 214 (Mullot).

¹⁷² Petitioner’s Postconference Brief at 19-20.

¹⁷³ CR at II-24; PR at II-15.

¹⁷⁴ CR/PR at Table II-6. In response to the same question, one responding U.S. importer/purchaser reported “frequently” and another reported “sometimes.” *Id.*

¹⁷⁵ Conference Tr. at 28 (Conner), 203-4 (May). While conceding that the CS300 competes with the 737-700 and MAX 7, as all three aircraft can be utilized for the same missions, Delta claims that the CS300 offers superior operating costs. *Id.* at 203-4 (May).

¹⁷⁶ CR at V-15-17; PR at V-6-7.

¹⁷⁷ CR/PR at Table V-2; CR at V-15; Petition at Exhibit 101 (***), paras. 5-9; Petitioner’s Postconference Brief at 20, Exhibit 44 (Conner Affidavit).

decisions: lifetime operating costs (seat and trip), maintenance costs, seat capacity, availability/backlog, commonality with existing fleet, delivery terms, performance (landing, takeoff, range), price, and reduced fuel requirements.¹⁷⁸ Although four of six responding U.S. importers/purchasers reported that price was a very important factor in their purchasing decisions, three of five responding U.S. importers/purchasers reported that differences other than price are always or frequently significant in sales of 100- to 150-seat LCA.¹⁷⁹

Airlines generally weigh competing offers from suppliers of 100- to 150-seat LCA by calculating the net present value (“NPV”) of each offer, taking into account both price and non-price factors.¹⁸⁰ According to Boeing, airlines use “sophisticated operating cost models” to compare the NPV of competing offers, calculated as the net acquisition price plus the net present value of revenues minus the net present value of operating costs (including depreciation, fuel, maintenance, training, and pilots).¹⁸¹ Delta compares competing offers from LCA suppliers using a similar NPV calculation, generally based on projected revenues and costs over a 15 year period.¹⁸² Bombardier claims that the acquisition cost of a 100- to 150-seat LCA accounts for only 20 to 25 percent of the lifetime operating cost of the LCA.¹⁸³

Airlines plan their fleets so as to optimize the profitability of their routes, generally acquiring aircraft in a variety of sizes that enable them to match seat capacity to seat demand on specific routes at specific times.¹⁸⁴ For example, as explained previously, Delta categorizes its fleet into six categories based on seat capacity, including a 110-30 seat category that corresponds to the domestic like product definition, and allocates aircraft from each category to routes so that the aircraft flying on each route have no more seats than necessary to accommodate anticipated seat demand on the route.¹⁸⁵ According to Delta, flying with empty seats increases per seat costs, reduces profitability, and may result in higher fares.¹⁸⁶ As part of a fleet optimization strategy, Delta has been replacing regional jets with larger single-aisle “mainline aircraft,” including new and used 100- to 150-seat LCA.¹⁸⁷

There is evidence on the record that the 100- to 150-seat LCA market is subject to some degree of price transmission effects, whereby the small number of sophisticated purchasers in the market are able to ascertain the prices at which their competitors acquire 100- to 150-seat LCA based on well-publicized sales campaigns.¹⁸⁸ To remain competitive, these purchasers may demand comparable prices from aircraft suppliers, in what Boeing calls the “lighthouse

¹⁷⁸ CR/PR at Table II-4.

¹⁷⁹ CR/PR at Tables II-4, 7.

¹⁸⁰ CR at II-33, V-5; PR at II-20, V-2-3; Conference Tr. at 180, 202 (May); Petitioner’s Postconference Brief at 21.

¹⁸¹ Petitioner’s Postconference Brief at 17, Exhibit 8, para. 128.

¹⁸² Conference Tr. at 180 (May).

¹⁸³ Bombardier’s Postconference Brief at 25-27; Conference Tr. at 165 (Mitchell).

¹⁸⁴ CR at I-20; PR at I-13-14.

¹⁸⁵ CR at IV-5-6; PR at IV-2; *see also* Section III.C. above.

¹⁸⁶ Conference Tr. at 171 (Esposito); Delta’s Postconference Brief at 17.

¹⁸⁷ CR at IV-6; PR at IV-2; Conference Tr. at 215 (Esposito).

¹⁸⁸ CR at V-8; PR at V-4; Petitioner’s Postconference Brief at 17.

effect.”¹⁸⁹ Respondents dispute the existence of a “lighthouse effect” and “price transmission” in the 100- to 150-seat LCA market, claiming that prices in the market are actually opaque.¹⁹⁰ Contrary to respondents’ position, however, Boeing was able to estimate *** Delta’s price per aircraft on its purchase of CS100s from Bombardier using public information, as were other market participants.¹⁹¹ Additionally, after Boeing reduced prices to secure an order for 737-700s from United, ***.¹⁹² We will further examine the nature of price transmission in the market in any final phase investigations.

There is also evidence that large initial customers for new 100- to 150-seat LCA designs receive a discount known as “launch pricing.” According to Delta, LCA producers normally offer a marquee customer “launch pricing,” representing a 20 to 30 percent discount, to compensate the customer for the risks associated with the acquisition of a new LCA design.¹⁹³ Respondents claim that LCA producers will offer such “launch pricing” on a new LCA design as long as the design’s delivery and dependability remain in doubt.¹⁹⁴ While acknowledging that launch pricing exists, Boeing observes that the Delta sale occurred long after the C Series launch in 2008, and that ***.¹⁹⁵

C. Likely Volume of the Subject Imports

We find that the volume and market share of subject imports will likely increase to significant levels in the imminent future. There were no subject imports during the period of investigation.¹⁹⁶ In April 2016, however, Delta placed a firm order with Bombardier for 75 CS100s (with an option to substitute CS300s after the first 35 deliveries) and an option for 50 CS100s (with an option to substitute CS300s).¹⁹⁷ Based on the deliveries that Bombardier is required to make pursuant to this order, Delta is scheduled to import *** CS100s in 2018 and *** CS100s in 2019, giving Bombardier a projected share of apparent U.S. consumption of ***

¹⁸⁹ CR at V-8; PR at V-4.

¹⁹⁰ CR at V-9; PR at V-4; See Bombardier’s Postconference Brief at 29-30; Delta’s Postconference Brief at 28-29.

¹⁹¹ See Petition at Exhibits 23 (Reuters article stating that rival jetmakers and analysts quickly calculated Delta had paid \$22-23 million per plane), 101 (***), para. 16 (estimating Delta’s price per plane at \$19.6 million, and \$23.3 million including ancillary items); CR/PR at Table VII-5 (***).

¹⁹² Petition at Exhibit 101 (***), para. 10.

¹⁹³ CR at V-2; PR at V-1-2; Delta’s Postconference Brief at 30.

¹⁹⁴ CR at V-3; PR at V-2; Bombardier’s Postconference Brief at 29.

¹⁹⁵ Petitioner’s Postconference Brief at 41; CR/PR at Table V-2.

¹⁹⁶ CR/PR at Table IV-11. We are unpersuaded by Bombardier’s argument that there was no significant rate of increase in subject import volume or market penetration during the period of investigation indicating the likelihood of increased imports. Bombardier’s Postconference Brief at 44. The third statutory threat factor does not limit our analysis to an extrapolation of trends over the period of investigation when the record contains other pertinent information concerning the likelihood of increased subject imports. See 19 U.S.C. §§ 1677(7)(F)(i)(III), (IX).

¹⁹⁷ CR at VII-6 n.5, 9; PR at VII-4 n.5, 9; CR/PR at Table VII-5; Delta’s Postconference Brief at 27-28.

percent in 2018 and *** percent in 2019.¹⁹⁸ Even if Bombardier encounters difficulties in fully satisfying these contractual obligations due to continuing start-up problems, we find it likely that subject import volume and market share will increase to significant levels in the imminent future, particularly given that ***.¹⁹⁹

We also find it likely that Bombardier will secure additional orders for subject imports in the imminent future. Bombardier has the ability to accept large orders for subject imports in the imminent future, given future projected excess capacity. Based on its current order book, Bombardier is far short of achieving the “production ramp up” targets reflected in its projected capacity for the 2017-21 period.²⁰⁰ Bombardier has projected unfilled capacity of *** units in 2017, *** units in 2018, *** units in 2019, *** units in 2020, and *** units in 2021.²⁰¹

Because its future production is already falling short of projected capacity in the imminent future, Bombardier has the incentive to aggressively seek additional orders in the U.S. market in the imminent future. When asked at the conference if it is “important that Bombardier adhere to this {production ramp up} schedule to make this program a financial success,” a Bombardier official responded “it is very important” and “we are forced to achieve that rate.”²⁰² Consistent with this testimony, both Bombardier and Boeing have stressed the importance of learning economies and economies of scale to the production of 100- to 150-seat LCA, through which a producer’s unit cost of producing a 100- to 150-seat LCA model declines as production of the model increases.²⁰³ Because of this characteristic of LCA production, if Bombardier is unable to achieve its production ramp up targets through 2021 by securing additional orders in the imminent future, it will forgo the learning economies and economies of scale that the targeted production rates would make possible, and suffer higher unit costs and weaker financial performance.

Bombardier is likely to focus its sales efforts on U.S. airlines due to the U.S. market’s size, Bombardier’s familiarity with the market, and the likelihood that U.S. airlines will seek to purchase larger volumes of 100- to 150-seat LCA in the imminent future. The U.S. market for 100- to 150-seat LCA is the largest single market for such aircraft in the world, and Boeing projects that it will account for *** percent of global demand for such aircraft over the next 20 years, equivalent to *** units per year.²⁰⁴ Bombardier is also highly familiar with the U.S.

¹⁹⁸ CR/PR at Tables VII-5, 8.

¹⁹⁹ CR at VII-4; PR at VII-3-4; CR/PR at Table VII-8.

²⁰⁰ Petition at Exhibit 108.

²⁰¹ CR/PR at Table VII-4. Bombardier argues that it will be unable to increase either production or exports to the U.S. market in the imminent future, beyond its planned delivery of aircraft to Delta. Bombardier’s Postconference Brief at 42-43. Nevertheless, based on the difference between its projected capacity and production as well as its stated 18 to 24 month lag between order and delivery, Bombardier has sufficient production slots available to accept additional orders for 100- to 150-seat LCA from U.S. customers in the imminent future, for production and delivery starting in late 2019. CR/PR at Table VII- 4.

²⁰² Conference Tr. at 214 (von Schrietz), 214 (Mullot).

²⁰³ CR at V-7-8; PR at V-3-4; Conference Tr. at 36 (Nickelsburg), 45, 92-93 (Anderson), 156-57 (Mullot).

²⁰⁴ CR at II-15 & n.46; PR at II-9 & n.46.

market, having made its largest sale to Delta, and considers the United States to be an extension of its home market in Canada.²⁰⁵

Bombardier has reported past, current, or likely sales discussions with *** U.S. airlines (***), including *** of the airlines with which Boeing has held sales discussions (***).²⁰⁶

All major U.S. airlines possess aging fleets of 100- to 150-seat LCA that will need replacement.²⁰⁷ Boeing reported that several airlines have already begun to consider purchases of 100- to 150-seat LCA, or are likely to do so in the imminent future. According to Boeing, ***.²⁰⁸ ***.²⁰⁹ ***.²¹⁰ ***, having ***.²¹¹ Bombardier has reported sales discussions, or likely sales discussions, with all of these airlines.²¹²

In addition to the attractiveness of the U.S. market to Bombardier, Delta's large order for CS100s may facilitate Bombardier's efforts to secure orders from other U.S. airlines. As a "marquee customer" for the CS100, Delta believes that its order served to validate the CS100 in the eyes of other U.S. airlines, thereby reducing their natural resistance to ordering an unproven aircraft.²¹³ Similarly, Boeing claims that the Delta order has given Bombardier "commercial momentum" in the U.S. market that should increase its likelihood of securing additional orders of C Series aircraft from other U.S. airlines.²¹⁴ As noted above, we intend to further investigate the importance of "commercial momentum" in the U.S. market in any final phase of the investigations.

In sum, we find that subject import volume and market share will likely be significant in the imminent future. We also find for purposes of the preliminary phase of these investigations that Bombardier is likely to aggressively pursue additional sales in the U.S. market in the imminent future.²¹⁵

²⁰⁵ CR at VII-9; PR at VII-5; Conference Tr. at 196 (Mitchell) ("So I would say that the markets are, in fact, one market not two. In fact, when we do our forecast, we forecast on North America. We do not separate between Canada and the United States.").

²⁰⁶ U.S. Producers' Questionnaire Response of Boeing at Question II-12; Foreign Producer/Exporters' Questionnaire Response of Bombardier at Question II-13.

²⁰⁷ CR at II-5-6; PR at II-3-4; Expert Report, Petitioner's Postconference Brief, Exhibit 8 at 17; Bombardier's Postconference Brief at 18-19.

²⁰⁸ CR at III-15; PR at III-5.

²⁰⁹ CR at III-16; PR at III-5.

²¹⁰ CR at III-16; PR at III-5.

²¹¹ CR at III-17, V-15 n.29; PR at III-5, V-6 n.29.

²¹² Foreign Producer/Exporters' Questionnaire Response of Bombardier at Question II-13; Conference Tr. at 21 (Novick) ("Bombardier has reportedly already had discussions with U.S. carriers, JetBlue and Spirit."). Bombardier was asked at the conference to provide sales projections for the U.S. market and "information on the . . . Spirit and JetBlue transactions that were mentioned earlier," Conference Tr. at 266 (Corkran), but declined to do so. See Bombardier's Postconference Brief, Attachment A at 6-7; Conference Tr. at 196 (Mitchell) ("when we do our forecast, we forecast on North America").

²¹³ CR at V-2-3; PR at V-1-2; Delta's Postconference Brief at 30-31.

²¹⁴ Petitioner's Postconference Brief at 30.

²¹⁵ We have also considered several other factors pertinent to our analysis of likely subject import volume. As previously discussed, aircraft manufacturers do not maintain inventories of LCA. CR (Continued...)

D. Likely Price Effects of the Subject Imports

We have found a moderate to high degree of substitutability between subject imports and domestically produced 100- to 150-seat LCA.²¹⁶ We have also found that price is an important factor in purchasing decisions, although non-price factors are also important.²¹⁷ Due to the complexity of 100- to 150-seat LCA and the numerous non-price factors that influence purchasing decisions, however, purchasers typically do not compare the up-front cost of acquiring competing aircraft but rather the NPV of competing offers from aircraft suppliers, which includes non-price factors such as fuel efficiency and maintenance costs.²¹⁸ For this reason, it is not possible or instructive simply to compare the sales price of subject imported 100- to 150-seat LCA to the sales price of comparable domestically produced 100- to 150-seat LCA. Instead, we base our analysis of the likely price effects of subject imports on two sales campaigns that concluded during the period of investigation, in which Boeing and Bombardier participated.

United launched a campaign to purchase ***.²¹⁹ ***.²²⁰ ***.²²¹ ***.²²² ***.²²³

(...Continued)

at VII-16; PR at VII-9. Bombardier does not produce out-of-scope aircraft in the same production facility as C Series LCA, and has no ability to shift between production of C Series LCA and out-of-scope aircraft. CR at VII-4-5; PR at VII-3-4. 100- to 150-seat LCA from Canada are not subject to trade remedy investigations or orders in any other country. CR at VII-18; PR at VII-9. Commerce has initiated a countervailing duty investigation based on an estimated countervailing duty rate of 79.41 percent for 100- to 150-seat LCA imported from Canada. *100- to 150-Seat Large Civil Aircraft from Canada: Initiation of Countervailing Duty Investigation*, 82 Fed. Reg. 24292 (May 26, 2017); *Enforcement and Compliance Office of AD/CVD Operations, Countervailing Duty Initiation Checklist, 100- to 150-Seat Large Civil Aircraft from Canada*, May 17, 2017. It is investigating the following alleged government subsidy programs in Canada: 1. Equity Infusion by *Investissement Québec*; 2. Equity Infusion by *Caisse de Dépôt et Placement du Québec ("CDPQ")*; 3. Launch aid by Canadian Federal Government; 4. Launch aid by Québec Provincial Government; 5. Launch aid by U.K. Government; 6. Export Development Canada Export Financing; 7. *Investissement Québec* Export Financing; 8. Technology Partnerships Canada Program; 9. Technology Demonstration Program; 10. Government Provision of Production Facilities and Land at Mirabel for Less Than Adequate Remuneration; 11. Tax Incentives and Other Support Provided by the City of Mirabel; 12. Innovation, Science, and Economic Development Canada Support for Aerospace Research and Development; 13. CDPQ Line of Credit; 14. *Emploi-Québec*. *Enforcement and Compliance Office of AD/CVD Operations, Countervailing Duty Initiation Checklist, 100- to 150-Seat Large Civil Aircraft from Canada*, May 17, 2017.

²¹⁶ See Section VI.B.3, above.

²¹⁷ See Section VI.B.3, above.

²¹⁸ CR at II-33, V-5; PR at II-20, V-2-3.

²¹⁹ Petition at Exhibit 101 (***), para. 6.

²²⁰ CR/PR at Table V-2.

²²¹ CR/PR at Table V-2.

²²² CR/PR at Table V-2. According to Bombardier, United found the CS100 too big for its needs, so Bombardier created a smaller version with only 100 seats, known as the CS100 Lite. Conference Tr. at 163 (Mitchell); Bombardier's Postconference Brief at 45.

²²³ Petition at Exhibit 101 (***), para. 8.

Accordingly, ***.²²⁴ Accepting the offer, United placed firm orders for 40 737-700s in January 2016 and ordered 25 more in March 2016, ***.²²⁵ United later exercised its right to convert these orders for 737-700s to a deferred order for larger aircraft.²²⁶

Delta launched a campaign in 2015 to purchase 100- to 110-seat mainline aircraft, and initially considered used Embraer E170s and Boeing 717s and new Embraer E195 and Bombardier CS100s.²²⁷ ***.²²⁸ Delta purchased the used Embraer E190s from Boeing but subsequently resold them.²²⁹ Unable to secure sufficient quantities of used 717s, or sufficient quantities of used Embraer E190s at competitive prices, Delta reconsidered the CS100, having rejected ***.²³⁰ Delta ultimately accepted *** in April 2016, placing a firm order for 75 CS100s (with an option to substitute CS300s after the first 35 deliveries) and an option for 50 CS100s (with an option to substitute CS300s).²³¹ Delta emphasizes that Boeing was unable to supply a new aircraft with 100 to 110 seats, or any 737 family aircraft in the requisite 2018-19 timeframe due to capacity constraints.²³² In any final phase of the investigations, we will examine the extent to which Boeing's 100- to 150-seat LCA offerings were a viable choice for Delta, and more generally the extent to which such LCA are a viable alternative to subject imports for other U.S. airlines.

²²⁴ CR/PR at Table V-2.

²²⁵ Petition at Exhibit 101 (***), para. 5.

²²⁶ CR at V-15 n.29; PR at V-6 n.29. Bombardier claims that United was originally interested in a CS100 Lite with only 100 seats until Boeing used cut-rate pricing to convince United to upgrade to the much larger 737-700 towards the end of the campaign, allegedly to prevent "validation of the C Series in the marketplace." Bombardier's Postconference Brief at 45 (quoting Conference Tr. at 163 (Mitchell)). Boeing claims that ***. Petition at Exhibit 101 (***), para. 8. In any final phase of the investigations, we intend to further investigate details of the United sales campaign, including the factors driving its decision to purchase 737-700s as opposed to other aircraft as well as United's subsequent decision to convert and defer its order with Boeing.

²²⁷ Conference Tr. at 181 (May).

²²⁸ CR at V-15; PR at V-6. ***. *Id.*

²²⁹ CR at V-16; PR at V-7. The Boeing 717 has not been manufactured since 2006. *Id.*

²³⁰ CR/PR at Table V-2; Delta's Postconference Brief at 24; Conference Tr. at 182 (May).

²³¹ CR at VII-6 n.5, 9; PR at VII-4 n.5, 5; CR/PR at Table VII-5; Delta's Postconference Brief at 27-28. Under the terms of the order, Delta agreed to pay \$***. CR/PR at Table VII-5. Delta contends that it agreed to become the "high-profile marquee airline" for the CS100 in exchange for "launch pricing," representing a 20 to 30 percent discount. CR at V-2; PR at V-2; Delta's Postconference Brief at 20, 30. It is unclear that "launch pricing" can explain the substantial discount that Delta received on the CS100. Bombardier launched the C Series in 2008, and made its first sale to Lufthansa in 2009, long before its sale to Delta in 2016. CR at II-10; PR at II-6. Moreover, ***. *Id.* Nevertheless, we recognize Bombardier's argument that it offered Delta reduced prices on the CS100 as compensation for the risk of purchasing an unproven new aircraft, and that it does not anticipate that other airlines will expect the same pricing. Conference Tr. at 165-66, 269-70 (Mitchell). In any final phase of the investigations, we will further examine the likely effect of Bombardier's contract with Delta on prices for 100- to 150-seat LCA in subsequent sales campaigns and transactions.

²³² CR at V-16; PR at V-7.

We find that the low prices offered by Bombardier for the CS100 in both the United and Delta sales campaigns are likely to have a significant depressing or suppressing effect on domestic prices and are likely to increase demand for further imports. ***.²³³ Although United later converted its order for 737-700s into a deferred order for larger LCA, ***, were aware of its price concession to United and ***.²³⁴

The Delta sale has likely had a similar effect on price expectations in the 100- to 150-seat LCA market. Contrary to respondents' claim that prices are opaque in the 100- to 150-seat LCA market, Boeing and other market participants *** estimated that Delta's purchase price for the CS100 was around \$23 million per aircraft.²³⁵ Given the close relationship between the CS100 and the CS300, and Delta's option to purchase up to 90 CS300s in lieu of CS100s at predetermined prices, other market participants can also infer that Delta received extremely favorable pricing on the CS300.²³⁶ To compete with Delta's low cost fleet of CS100s, and possibly CS300s, other U.S. airlines will likely demand similarly low prices on 100- to 150-seat LCA offered by either Boeing or Bombardier.²³⁷

In light of Bombardier's low price strategy during the United and Delta campaigns, and the low price expectations created by the strategy, we find it likely that Bombardier will offer similarly low prices in the sales campaigns likely to take place in the imminent future, as a means of securing the sales it requires to achieve its production ramp up targets. In the face of low priced subject import competition, Boeing will likely be forced to either reduce its own prices to win sales, thereby causing a significant depressing or suppressing effect on domestic prices, or else lose the sales.²³⁸

²³³ CR/PR at Table V-2.

²³⁴ Petition at Exhibit 101 (***), para. 10.

²³⁵ See Petition at Exhibits 23 (Reuters article stating that rival jetmakers and analysts quickly calculated Delta had paid \$22-23 million per plane), 101 (***), para. 16 (estimating Delta's price per plane at \$19.6 million, and \$23.3 million including ancillary items); CR/PR at Table VII-5 (***). Market participants are also aware that Bombardier recognized a loss of \$516 million under the "onerous contracts provisions" on the closing of firm orders for C Series LCA during the second quarter of 2016, which included Delta's order for CS100s, indicating that the cost of satisfying the contract exceeded the economic benefits expected to be received under the contract. CR at VII-6; PR at VII-4; see also Petition at Exhibit 36.

²³⁶ See Petition at Exhibit 101 (***), paras. 17, 19.

²³⁷ See Petition at Exhibits 36, 101 (***), paras. 19.

²³⁸ We recognize that Boeing may not experience the full adverse effects of depressed or suppressed prices on orders secured in the imminent future until deliveries are made beyond the imminent period. In any final phase of the investigations, we will examine further the timing of the adverse price effects realized by Boeing on sales made in the imminent future.

E. Likely Impact of the Subject Imports²³⁹

We have considered the performance of the domestic industry during the period of investigation. Boeing's production of 100- to 150-seat LCA was *** units in 2014, *** units in 2015, *** units in 2016, and *** units in January-March 2016 and 2017.²⁴⁰ Because Boeing plans its capacity to match projected production based on orders, its rate of capacity utilization was *** percent during the 2014-16 period.²⁴¹ Based on current orders, Boeing projects production of *** units in 2017, *** units in 2018, *** units in 2019, *** units in 2020, and *** units in 2021, with capacity utilization of *** percent in each year.²⁴²

Boeing had U.S. shipments ***.²⁴³ The balance of Boeing's production during the 2014-16 period ***.²⁴⁴ Boeing reported *** in January-March of 2016 and 2017.²⁴⁵

The number of production related workers ("PRWs") that Boeing engaged in the production of 100- to 150-seat LCA was *** in 2014, *** in 2015, and *** in 2016.²⁴⁶ Hours worked were *** hours in 2014, *** hours in 2015, and *** hours in 2016.²⁴⁷ Wages paid were \$*** in 2014, \$*** in 2015, and \$*** in 2016.²⁴⁸ Boeing ***.²⁴⁹

Boeing's commercial sales revenues on sales of 100- to 150-seat LCA were \$*** in 2014, \$*** in 2015, and \$*** in 2016.²⁵⁰ Its gross profit was \$*** in 2014, \$*** in 2015, and \$*** in 2016.²⁵¹ Its operating income was \$*** in 2014, \$*** in 2015, and \$*** in 2016.²⁵² As a share of net sales, operating income was *** percent in 2014, *** percent in 2015, and *** percent in 2016.²⁵³ Its average operating return on assets was *** percent in 2014, *** percent in 2015, and *** percent in 2016.²⁵⁴ Boeing ***.²⁵⁵

²³⁹ In its notice initiating the antidumping duty investigation on LCA from Canada, Commerce reported an estimated dumping margin of 79.82 percent for subject imports from Canada. *100- to 150-Seat Large Civil Aircraft from Canada: Initiation of Less-Than-Fair-Value Investigation*, 82 Fed. Reg. 24296, 24299 (May 26, 2017).

²⁴⁰ CR/PR at Table III-5.

²⁴¹ CR/PR at Table III-4.

²⁴² CR/PR at Table III-5.

²⁴³ CR at III-10; PR at III-4; CR/PR at Table III-9.

²⁴⁴ CR/PR at Table III-9.

²⁴⁵ CR/PR at Table III-9, note.

²⁴⁶ CR/PR at Table III-12.

²⁴⁷ CR/PR at Table III-12.

²⁴⁸ CR/PR at Table III-12.

²⁴⁹ CR/PR at Table III-12.

²⁵⁰ CR/PR at Table VI-1.

²⁵¹ CR/PR at Table VI-1.

²⁵² CR/PR at Table VI-1.

²⁵³ CR/PR at Table VI-1.

²⁵⁴ CR/PR at Table VI-5.

²⁵⁵ CR/PR at Table VI-1. Boeing also reported ***. CR at III-21; PR at III-7.

Boeing's capital expenditures were \$*** in 2014, \$*** in 2015, and \$*** in 2016.²⁵⁶ Its research and development expenses, devoted ***, were \$*** in 2014, \$*** in 2015, and \$*** in 2016.²⁵⁷

The record of the preliminary phase of the investigations shows that several U.S. airlines are likely to consider placing large orders for 100- to 150-seat LCA in the imminent future, and that ***.²⁵⁸ We have found that Bombardier will likely compete aggressively for orders from these U.S. airlines, driven by its need to achieve the production ramp up targets necessary for the C Series program's financial viability.²⁵⁹ We have also found that Bombardier is likely to offer low prices to secure additional orders for the C Series, ***.²⁶⁰ Faced with low-priced subject import competition, Boeing will be forced to either cut its own prices to win sales or lose sales and market share to Bombardier.

We find a reasonable indication that subject imports are likely to materially injure the domestic industry in the imminent future, by significantly depressing or suppressing domestic prices on those orders that Boeing receives and by securing additional orders for 100- to 150-seat LCA at Boeing's expense. Boeing is currently developing the 737-700's replacement, the 737 MAX 7, and requires advance orders for the 737 MAX 7 both to help finance the model's development with pre-delivery payments and, more importantly, to increase the rate at which it can move down the learning curve in producing the 737 MAX 7, thereby reducing unit costs and increasing financial returns.²⁶¹ According to Boeing, the 737 MAX 7 program is currently jeopardized by the paucity of advance orders for the model, with no orders received since 2013 and only *** orders outstanding.²⁶² Absent ***, Boeing claims, ***.²⁶³ Given this, and the likely adverse effects of subject imports on the volumes and prices of Boeing's orders for the 737 MAX 7, we find that subject imports are likely to have significant negative effects on the existing development and production efforts of the domestic industry, including efforts to develop a derivative or more advanced version of the domestic like product.²⁶⁴

²⁵⁶ CR/PR at Table VI-4. Boeing reported data for capital and research and development expenses on an annual basis.

²⁵⁷ CR/PR at Table VI-4.

²⁵⁸ CR at III-14-17; PR at III-5; Foreign Producer/Exporters' Questionnaire of Bombardier at Question II-12.

²⁵⁹ See Section VI.C above.

²⁶⁰ See Section VI.D above.

²⁶¹ CR at V-7-8; PR at V-3-4; Petitioner's Postconference Brief at 19; Conference Tr. at 92-93 (Anderson), 93 (Conner), 131 (Anderson).

²⁶² CR/PR at Table VI-7; Petitioner's Postconference Brief at 45.

²⁶³ CR/PR at Table VI-7.

²⁶⁴ We are unpersuaded by respondents' argument that subject imports could have no adverse impact on the 737 MAX 7 program because Boeing has largely completed development of the 737 MAX 7 and because the C Series does not compete with the 737 MAX 7. See Bombardier's Postconference Brief at 23-24, 48-49. Boeing's 737 MAX 7 remains in the development phase, and Boeing reported ***. CR/PR at Table VI-7; Conference Tr. at 42 (Nickelsburg), 92 (Conner). Moreover, we have found a moderate to high degree of substitutability between subject imports and the domestic like product. See (Continued...)

We have also considered factors other than subject imports to ensure that we are not attributing any threat of material injury from other such factors to the subject imports. Although *** commercial deliveries of 100- to 150-seat LCA in the U.S. market during the period of investigation consisted of nonsubject imports from Airbus, ***.²⁶⁵ Furthermore, there is no evidence that Airbus competed ***.²⁶⁶ Nevertheless, Airbus's new model for the 100- to 150-seat LCA market, the A319neo, is scheduled to enter service in 2018,²⁶⁷ and many U.S. airlines possess existing fleets of A319s, making it likely that Airbus will compete for orders from U.S. airlines for the A319neo in the imminent future.²⁶⁸ In any final phase of the investigations, we intend to investigate further the likely effects of such competition on the domestic industry in the imminent future.

Respondents also argue that subject imports could not threaten to materially injure Boeing in the imminent future because Boeing's capacity to produce the 737 family, including the 737 MAX 7, is "maxed out" for the next eight years, with an order backlog of 4,506 planes.²⁶⁹ Even with additional orders, Bombardier claims, Boeing could not produce or deliver additional 737-700s or MAX 7s in the imminent future.²⁷⁰ Disputing that its production of 100- to 150-seat LCA is capacity-constrained, Boeing claims that, with enough orders, it could increase the rate of production of 100- to 150-seat LCA to match the orders within two years.²⁷¹ In any final phase of the investigations, we intend to further investigate whether capacity limitations constrain Boeing's ability to compete for orders in the 100- to 150-seat LCA market.

VII. Conclusion

For the reasons stated above, we determine that there is a reasonable indication that an industry in the United States is threatened with material injury by reason of subject imports of 100- to 150-seat LCA from Canada that are allegedly sold in the United States at less than fair value and that are allegedly subsidized by the GOC.

(...Continued)

Section VI.C.3 above. Indeed, ***, and Delta has acknowledged that the CS300 competes with the 737-700 and MAX 7. *Id.*

²⁶⁵ CR/PR at Tables IV-11, VII-8.

²⁶⁶ CR/PR at Table V-2; Petitioner's Postconference Brief at A-15 ("To the best of Boeing's knowledge, Airbus did not compete in either campaign."); Petition at Exhibit 101 (***)

²⁶⁷ CR at II-14; PR at II-8.

²⁶⁸ CR at II-14, III-14-17; PR at II-8, III-5.

²⁶⁹ Bombardier's Postconference Brief at 33; CR at II-10; PR at II-6.

²⁷⁰ Bombardier's Postconference Brief at 33.

²⁷¹ Conference Tr. at 118 (Anderson), 119-20 (Conner); Petitioner's Postconference Brief at A-18. Boeing also claims that it often reschedules deliveries to other customers to ensure that a major order from a major customer is filled within the required timeframe. Conference Tr. at 119 (Conner). Neither Boeing nor Bombardier maintain inventories of 100- to 150-seat LCA. CR at II-9, VII-16; PR at II-6, VII-9.

PART I: INTRODUCTION

BACKGROUND

These investigations result from petitions filed with the U.S. Department of Commerce (“Commerce”) and the U.S. International Trade Commission (“USITC” or “Commission”) by The Boeing Company (“Boeing”), Chicago, Illinois, on April 27, 2017, alleging that an industry in the United States is threatened with material injury by reason of subsidized and less-than-fair-value (“LTFV”) imports of 100- to 150-seat large civil aircraft (“100- to 150-seat LCA”)¹ from Canada. The following tabulation provides information relating to the background of these investigations.^{2 3}

Effective date	Action
April 27, 2017	Petitions filed with Commerce and the Commission; institution of Commission investigations (82 FR 20634, May 3, 2017)
May 17, 2017	Commerce’s notices of initiation of countervailing duty investigation (82 FR 24292, May 26, 2017) and antidumping duty investigation (82 FR 24296, May 26, 2017)
May 18, 2017	Commission’s conference
June 9, 2017	Commission’s vote
June 12, 2017	Commission’s determinations
June 19, 2017	Commission’s views

STATUTORY CRITERIA AND ORGANIZATION OF THE REPORT

Statutory criteria

Section 771(7)(B) of the Tariff Act of 1930 (the “Act”) (19 U.S.C. § 1677(7)(B)) provides that in making its determinations of injury to an industry in the United States, the Commission--

¹ See the section entitled “The Subject Merchandise” in *Part I* of this report for a complete description of the merchandise subject in this proceeding.

² Pertinent *Federal Register* notices are referenced in app. A, and may be found at the Commission’s website (www.usitc.gov).

³ A list of witnesses appearing at the conference is presented in app. B of this report.

shall consider (I) the volume of imports of the subject merchandise, (II) the effect of imports of that merchandise on prices in the United States for domestic like products, and (III) the impact of imports of such merchandise on domestic producers of domestic like products, but only in the context of production operations within the United States; and. . . may consider such other economic factors as are relevant to the determination regarding whether there is material injury by reason of imports.

Section 771(7)(C) of the Act (19 U.S.C. § 1677(7)(C)) further provides that--⁴

In evaluating the volume of imports of merchandise, the Commission shall consider whether the volume of imports of the merchandise, or any increase in that volume, either in absolute terms or relative to production or consumption in the United States is significant.. . .In evaluating the effect of imports of such merchandise on prices, the Commission shall consider whether. . .(I) there has been significant price underselling by the imported merchandise as compared with the price of domestic like products of the United States, and (II) the effect of imports of such merchandise otherwise depresses prices to a significant degree or prevents price increases, which otherwise would have occurred, to a significant degree.. . . In examining the impact required to be considered under subparagraph (B)(i)(III), the Commission shall evaluate (within the context of the business cycle and conditions of competition that are distinctive to the affected industry) all relevant economic factors which have a bearing on the state of the industry in the United States, including, but not limited to. . . (I) actual and potential decline in output, sales, market share, gross profits, operating profits, net profits, ability to service debt, productivity, return on investments, return on assets, and utilization of capacity, (II) factors affecting domestic prices, (III) actual and potential negative effects on cash flow, inventories, employment, wages, growth, ability to raise capital, and investment, (IV) actual and potential negative effects on the existing development and production efforts of the domestic industry, including efforts to develop a derivative or more advanced version of the domestic like product, and (V) in {an antidumping investigation}, the magnitude of the margin of dumping.

⁴ Amended by PL 114-27 (as signed, June 29, 2015), Trade Preferences Extension Act of 2015.

In addition, Section 771(7)(J) of the Act (19 U.S.C. § 1677(7)(J)) provides that—⁵

(J) EFFECT OF PROFITABILITY.—The Commission may not determine that there is no material injury or threat of material injury to an industry in the United States merely because that industry is profitable or because the performance of that industry has recently improved.

Organization of report

Part I of this report presents information on the subject merchandise, alleged subsidy and dumping margins, and domestic like product. *Part II* of this report presents information on conditions of competition and other relevant economic factors. *Part III* presents information on the condition of the U.S. industry, including data on capacity, production, shipments, inventories, and employment. *Parts IV* and *V* present the volume of subject imports and pricing of domestic and imported products, respectively. *Part VI* presents information on the financial experience of U.S. producers. *Part VII* presents the statutory requirements and information obtained for use in the Commission’s consideration of the question of threat of material injury as well as information regarding nonsubject countries.

MARKET SUMMARY

100- to 150-seat LCA are generally used to transport passengers, their baggage, and, at times, other cargo. They are used on short- to medium-range routes, including trans-continental service between the east and west coasts of the United States. These 100- to 150-seat LCA are able to service routes that are longer and subject to higher passenger traffic levels than those served by regional jets, as well as routes where there is insufficient demand to fill larger single-aisle LCA adequately.⁶ Boeing is the sole U.S. producer of 100- to 150-seat LCA, while Bombardier Inc. (“Bombardier”) is the sole producer of 100- to 150-seat LCA in Canada.⁷ While no firm imported 100- to 150-seat LCA from Canada in 2016, Delta Air Lines, Inc. (“Delta”) has placed an order for importation of 100- to 150-seat LCA from Canada. The largest U.S. airlines by overall fleet size (including larger LCA) are American Airlines (“American”), Delta, Southwest Airlines (“Southwest”), United Airlines (“United”), and JetBlue Airways Corporation (“JetBlue”), which collectively accounted for the bulk of U.S. demand in 2016.

Apparent U.S. consumption of 100- to 150-seat LCA totaled *** units (\$***) in 2016. Currently, Boeing is the only producer of 100- to 150-seat LCA in the United States. Boeing’s U.S. shipments of 100- to 150-seat LCA totaled *** (\$***) in 2016, and accounted for ***

⁵ Amended by PL 114-27 (as signed, June 29, 2015), Trade Preferences Extension Act of 2015.

⁶ Petition, pp. 35-36. 100- to 150-seat LCA are not used on long-haul routes, such as between Asia and the United States, which are served by twin-aisle LCA. *Ibid.*, p. 36.

⁷ Airbus SAS (“Airbus”) also produces 100- to 150-seat LCA in facilities located in nonsubject countries Germany and China.

percent of apparent U.S. consumption by quantity and *** percent by value. U.S. imports/purchases from subject sources totaled *** units (\$***) in 2016 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. imports/purchases from nonsubject sources totaled *** units (\$***) in 2016 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value.

SUMMARY DATA AND DATA SOURCES

A summary of data collected in the investigations is presented in appendix C. Except as noted, U.S. industry data are based on the questionnaire response of one firm, Boeing, which accounted for *** U.S. production of 100- to 150-seat LCA during 2016.⁸ U.S. imports and sales for importation are based on questionnaire responses of nine firms that have purchased, ordered, accepted delivery of, received offers for sale for, and/or entered into a lease arrangement for 100- to 150-seat LCA since January 1, 2014. These U.S. importers/purchasers are believed to have accounted for all imported 100- to 150-seat LCA during 2016. Foreign industry data and related information are based on the questionnaire response of Bombardier, the producer of 100- to 150-seat LCA in Canada.⁹

PREVIOUS AND RELATED INVESTIGATIONS

On May 27, 1982, countervailing duty petitions were filed with Commerce and the Commission on behalf of Commuter Aircraft Corporation of Youngstown, Ohio alleging that certain commuter airplanes imported from France and Italy were being subsidized by the governments of France and Italy. In the preliminary phase of the proceeding, the Commission determined that there was no reasonable indication that an industry in the United States was materially injured or was threatened with material injury, or that the establishment of an industry in the United States was materially retarded by reason of certain commuter airplanes from France and Italy.¹⁰

On August 13, 1982, a countervailing duty petition was filed with Commerce and the Commission on behalf of Fairchild Swearingen Corporation of San Antonio, Texas alleging that certain commuter airplanes imported from Brazil were being subsidized by the government of Brazil. In the preliminary phase of the proceeding, the Commission again determined that there

⁸ A second U.S. producer questionnaire was received from Airbus Americas Inc. (“Airbus Americas”) ***. Airbus Americas’ U.S. manufacturing facility in Mobile, Alabama began production in July 2015 and is equipped to build the A319, A320, and A321 models. It has delivered 27 A321 units thus far and will begin production of A320 units, both of which are not within the scope of these investigations. “Airbus Begins Production of First U.S.-Built A320 in Mobile,” <http://www.airbus.com/company/americas/newsroom/newsroom-single/detail/airbus-begins-production-of-first-us-built-a320-in-mobile/>, May 8, 2017.

⁹ Although a foreign producer questionnaire was issued to ***.

¹⁰ *Certain Commuter Airplanes from France and Italy: Investigation Nos. 701-TA-174 and 175 (Preliminary)*, USITC Publication 1269, July 1982, pp. 1-2.

was no reasonable indication that an industry in the United States was materially injured or was threatened with material injury, or that the establishment of an industry in the United States was materially retarded by reason of imports of certain commuter airplanes from Brazil.¹¹

The Commission has also conducted three research studies on related aircraft at the request of the United States House of Representatives Committee on Ways and Means. The first study was published in November 1998 concerning the changing structure of the global LCA industry and market and its implication for the competitiveness of the U.S. industry.¹² In June 2001, the Commission published another study concerning the competitive assessment of the U.S. LCA aerostructures industry.¹³ The Commission completed its third study in April 2012 concerning structures and factors affecting competitiveness in the business jet aircraft industry.¹⁴

NATURE AND EXTENT OF ALLEGED SUBSIDIES AND SALES AT LTFV

Alleged subsidies

On May 26, 2017, Commerce published notice in the *Federal Register* of the initiation of its countervailing duty investigation on 100- to 150-seat LCA from Canada.¹⁵ Commerce has initiated the investigation based on an estimated countervailing duty margin of 79.41 percent for 100- to 150-seat LCA from Canada and identified the following government programs in Canada:¹⁶

¹¹ *Certain Commuter Airplanes from Brazil: Investigation Nos. 701-TA-188 (Preliminary)*, USITC Publication 1291, September 1982, p. 1.

¹² *The Changing Structure of the Global Large Civil Aircraft Industry and Market: Implications for the Competitiveness of the U.S. Industry: Investigation No. 332-384*, USITC Publication 3143, November 1998.

¹³ *Competitive Assessment of the U.S. Large Civil Aircraft Aerostructures Industry: Investigation No. 332-414*, USITC Publication 3433, June 2001.

¹⁴ *Business Jet Aircraft Industry: Structure and Factors Affecting Competitiveness: Investigation No. 332-526*, USITC Publication 4314, April 2012.

¹⁵ *100- to 150-Seat Large Civil Aircraft from Canada: Initiation of Countervailing Duty Investigation*, 82 FR 24292, May 26, 2017.

¹⁶ *Enforcement and Compliance Office of AD/CVD Operations, Countervailing Duty Initiation Checklist, 100- to 150-Seat Large Civil Aircraft from Canada*, May 17, 2017.

1. Equity Infusion by *Investissement Québec* (\$1 billion)
2. *Equity Infusion by Caisse de Dépôt et Placement du Québec* (\$1.5 billion)
3. Launch aid by Canadian Federal Government (\$259.9 million)
4. Launch aid by Québec Provincial Government (\$86.9 million)
5. Launch aid by U.K. Government (\$145.9 million)
6. Export Development Canada Export Financing
7. *Investissement Québec* Export Financing (\$1 billion)
8. Technology Partnerships Canada Program (\$103.7 million)
9. Technology Demonstration Program (\$40.1 million)
10. Government Provision of Production Facilities and Land at Mirabel for Less Than Adequate Remuneration
11. Tax Incentives and Other Support Provided by the City of Mirabel
12. Innovation, Science, and Economic Development Canada Support for Aerospace Research and Development (\$14.9 million)
13. CDPQ Line of Credit (\$500 million)
14. *Emploi-Québec* (\$3.0 million)

Alleged sales at LTFV

On May 26, 2017, Commerce published notice in the *Federal Register* of the initiation of an antidumping duty investigation on 100- to 150-seat LCA from Canada.¹⁷ Commerce initiated the investigation based on an estimated dumping margin of 79.82 percent for 100- to 150-seat LCA from Canada.

THE SUBJECT MERCHANDISE

Commerce's scope

Commerce has defined the scope of these investigations as follows:¹⁸

{A}ircraft, regardless of seating configuration, that have a standard 100- to 150-seat two-class seating capacity and a minimum 2,900 nautical mile range, as these terms are defined below.

¹⁷ *100- to 150-Seat Large Civil Aircraft from Canada: Initiation of Less-Than-Fair-Value Investigation*, 82 FR 24296, May 26, 2017.

¹⁸ *Enforcement and Compliance Office of AD/CVD Operations, Countervailing Duty Initiation Checklist, 100- to 150-Seat Large Civil Aircraft from Canada*, May 17, 2017; *Enforcement and Compliance Office of AD/CVD Operations, Antidumping Duty Initiation Checklist, 100- to 150-Seat Large Civil Aircraft from Canada*, May 17, 2017; *100- to 150-Seat Large Civil Aircraft from Canada: Initiation of Less-Than-Fair-Value Investigation*, 82 FR 24292, May 26, 2017; and *100- to 150-Seat Large Civil Aircraft from Canada: Initiation of Countervailing Duty Investigation*, 82 FR 24296, May 26, 2017.

“Standard 100- to 150-seat two-class seating capacity” refers to the capacity to accommodate 100 to 150 passengers, when eight passenger seats are configured for a 36-inch pitch, and the remaining passenger seats are configured for a 32-inch pitch.

“Pitch” is the distance between a point on one seat and the same point on the seat in front of it.

“Standard 100- to 150-seat two-class seating capacity” does not delineate the number of seats actually in a subject aircraft or the actual seating configuration of a subject aircraft. Thus, the number of seats actually in a subject aircraft may be below 100 or exceed 150.

A “minimum 2,900 nautical mile range” means:

(i) able to transport between 100 and 150 passengers and their luggage on routes equal to or longer than 2,900 nautical miles; or

(ii) covered by a U.S. Federal Aviation Administration (“FAA”) type certificate or supplemental type certificate that also covers other aircraft with a minimum 2,900 nautical mile range.

The scope includes all aircraft covered by the description above, regardless of whether they enter the United States fully or partially assembled, and regardless of whether, at the time of entry into the United States, they are approved for use by the FAA.

The merchandise covered by this investigation is currently classifiable under Harmonized Tariff Schedule of the United States (“HTSUS”) subheading 8802.40.0040. The merchandise may alternatively be classifiable under HTSUS subheading 8802.40.0090. Although these HTSUS subheadings are provided for convenience and customs purposes, the written description of the scope of the investigation is dispositive.

Tariff treatment

Based upon the scope set forth by the Department of Commerce, information available to the Commission indicates that the merchandise subject to these investigations is classified in HTS subheading 8802.40.00 (statistical reporting number 8802.40.0040, for new passenger transport airplanes and other aircraft, of an unladen weight exceeding 15,000 kg).¹⁹ The Column 1-General rate of duty is “Free.”

¹⁹ Decisions on the tariff classification and treatment of imported goods are within the authority of U.S. Customs and Border Protection.

THE PRODUCT

Description and applications

100- to 150-seat large civil aircraft, for the purposes of this proceeding, are defined as aircraft having a standard two-class seating capacity between 100 and 150 seats and a minimum range of 2,900 nautical miles. Standard seating capacity refers to a typical, two-class arrangement used on commercial airline routes where the first class comprises eight passenger seats with a 36-inch pitch and the second class comprises the remaining seats with a 32-inch pitch.²⁰ Aircraft with the capacity for 100- to 150-seats as described above, but currently configured in a non-compliant manner are still considered to be within the scope of these investigations.²¹ For example, an aircraft designed for a single, business class containing fewer than 100 seats would still be classified as being within the scope if a two-class seating arrangement for this aircraft would accommodate 100 to 150 seats.

Subject aircraft must be capable of transporting 100 to 150 passengers with accompanying luggage on routes greater than or equal to 2,900 nautical miles. Aircraft with ranges below 2,900 nautical miles but still covered by a relevant FAA-type certificate or supplemental certificate are considered to be within the scope of these investigations. This provision allows for the inclusion of aircraft eligible for certifications that have been subsequently modified for sub-2,900 nautical mile ranges but would otherwise be capable of traveling a greater distance.²²

100- to 150-seat LCA encompass the smallest classification of LCA and are designed primarily for use in commercial passenger transport as opposed to military, private business, or freight purposes.²³ The subject aircraft are used by airlines on routes dependent on higher passenger demand than smaller, regional jets would be capable of serving as well as routes where there is insufficient demand for higher-capacity civil aircraft.²⁴ Given a minimum 2,900 nautical mile range, 100- to 150-seat LCA are suited for short- and medium-ranged routes including transcontinental U.S. travel. Transoceanic routes are greater in distance and are instead serviced by larger, two-aisled civil aircraft.²⁵ The 737 Next Generation and 737 MAX

²⁰ Pitch is the distance between a singular point on one seat and the same point on the seat in an adjacent row. *100- to 150-Seat Large Civil Aircraft from Canada: Initiation of Less-Than-Fair-Value Investigation*, 82 FR 24296, May 26, 2017.

²¹ Ibid.

²² Ibid.

²³ There is no official definition for large civil aircraft that incorporates a seating requirement. The Commission has previously followed the traditional definition of large civil aircraft of having more than 100 seats and weighing over 33,000 pounds. *Competitive Assessment of the U.S. Large Civil Aircraft Aerostructures Industry: Investigation No. 332-414*, USITC Publication 3433, June 2001.

²⁴ *100- to 150-Seat Large Civil Aircraft from Canada: Initiation of Less-Than-Fair-Value Investigation*, 82 FR 24296, May 26, 2017.

²⁵ Petition, p. 36.

families of aircraft are the only single-aisle LCA that Boeing currently produces. The other LCA that Boeing produces, the 747, 767, 777, and 787 families of aircraft, all have dual aisles.²⁶

Airlines are the primary purchasers of 100- to 150-seat LCA and negotiate binding contracts with producers, which specify contract details including model types, quantity of aircraft, prices, delivery dates, and payment terms regarding future deliveries of the aircraft.²⁷ Purchasing decisions usually occur after a lengthy sales campaign and multiple competing bids from several producers.²⁸ These arrangements typically stipulate an initial payment and periodic pre-delivery payments that ensure a revenue stream to producers while they are manufacturing the aircraft. Upon delivery of the aircraft, a final payment is made and the aircraft is then transferred to the purchaser.²⁹ The average time between an order and delivery of domestically produced, 100- to 150-seat LCA is ***.

As defined, there are two domestically produced aircraft meeting the definition of 100- to 150-seat LCA: the Boeing 737-700 and the 737 MAX 7.³⁰ The Boeing 737-700 is capable of transporting 126 passengers in a typical two-class seating arrangement at a maximum range of 3,365 nautical miles. The Boeing 737 MAX 7 is capable of transporting 138 passengers in a typical, two-class seating arrangement a maximum range of 3,850 nautical miles.³¹ The additional range of the Boeing 737 MAX 7 is possible due to its use of the larger Leap-1B engine, as opposed to the CFM56-7 engine normally used by the Boeing 737-700.³² Other variants of the Boeing 737-700 include the Boeing 737-700C and the Boeing 737-700W. The Boeing 737-700C is a derivative of the Boeing 737-700, which is capable of converting between an all-passenger setup and an all-cargo setup. The Boeing 737-700C has reinforced wings as well as a main cargo door on the fuselage.³³ The Boeing 737-700W is the typical Boeing 737-700 design

²⁶ Boeing, "777 Design Highlights," <http://www.boeing.com/commercial/777/#/design-highlights/unmatched-capabilities/family-flexibility/capacity/>.

²⁷ Petition, p. 47.

²⁸ Ibid., p. 49.

²⁹ Ibid., p. 48.

³⁰ The Boeing 737 MAX 7 is the planned successor to the Boeing 737-700 and is expected to enter into service in 2019. Petition, p. 26. A previously manufactured aircraft, the Boeing 717 model, was capable of transporting 106 passengers in a typical, two-class seating arrangement at a range of 2,055 nautical miles. Boeing produced 156 Boeing 717 units between 1998 and 2006 after which production was ceased. Boeing, "The 717 is a Full-Size Airplane for the Regional Market," Boeing Presentation, 2005, http://www.boeing.com/resources/boeingdotcom/company/about_bca/startup/pdf/historical/717_passenger.pdf; Boeing, "Historical Snapshot," <http://www.boeing.com/history/products/717-md-95.page>.

³¹ Petition, p. 36.

³² Boeing, "LEAP-1B: 737 MAX vs Next-Generation 737," <http://www.boeing.com/commercial/737max/by-design/#/leap-1b-737ng-737max>.

³³ Boeing, "FAA Certifies Boeing Next-Generation 737-700 Convertible," Boeing News Release, <http://boeing.mediaroom.com/2000-09-07-FAA-Certifies-Boeing-Next-Generation-737-700-Convertible>.

with added winglets. Winglets are carbon-fiber composite extensions which are retrofitted onto the wings of a Boeing 737-700 to increase fuel efficiency.³⁴

Globally, there are six aircraft models that meet the definition of 100- to 150-seat LCA for this proceeding. The Boeing 737-700 and 737 MAX 7 models are produced in the United States, the Bombardier CS100 and CS300 models are produced in Canada, and the Airbus A319ceo and A319neo models are produced in the European Union and China.³⁵ Table I-1 compares the physical similarities between the six aircraft models.

Table I-1
100- to 150-seat LCA: Physical characteristics of 100- to 150-seat LCA

Model	Passengers (two-class)	Wingspan (m)	Length (m)	Height (m)
Boeing 737-700	126	35.8	33.6	12.5
Boeing 737 MAX 7	138	35.9	35.6	12.3
Bombardier CS100	108	35.1	35.0	11.5
Bombardier CS300	130	35.1	38.7	11.5
Airbus A319ceo	124	35.8	33.8	11.8
Airbus A319neo	140	35.8	33.8	11.8

Source: Boeing, "Next-Generation 737 Design Highlights: 737-700," <http://www.boeing.com/commercial/737ng/#/design-highlights/characteristics/737-700/>; Boeing, "737 Max 7 Characteristics," <http://www.boeing.com/commercial/737max/by-design/#/737max-7-characteristics>; Bombardier, "C Series: CS100," http://commercialaircraft.bombardier.com/content/dam/Websites/bca/literature/cseries/C%20Series_CS100_Factsheet201607_EN.pdf; Bombardier, "C Series: CS300," http://commercialaircraft.bombardier.com/content/dam/Websites/bca/literature/cseries/C%20Series_CS300_Factsheet_201607_EN.pdf; Airbus, "Airbus Family Figures," March 2016 Edition, http://www.airbus.com/fileadmin/media_gallery/files/brochures_publications/aircraft_families/Airbus-Family-figures-booklet-March2016.pdf.

Manufacturing processes

Domestic production of 100- to 150-seat LCA occurs ***. When the Boeing 737 MAX 7 fully enters production, it will also occur at Boeing's Renton facility and follow a similar production process to that of the Boeing 737-700, using much of the same equipment.³⁶ The fuselages of the aircraft are produced in Wichita, Kansas before being shipped to the Renton facility for assembly.³⁷ Additional fabrication and production facilities involved with the manufacturing processes of the Boeing 737-700 and Boeing 737 MAX 7 are located in Ladson, South Carolina; Auburn, Washington; Salt Lake City, Utah; Gresham, Washington; Helena, Montana; Everett, Washington; Puyallup, Washington; and Tukwila, Washington.

³⁴ Boeing, "Blended Winglets Improve Performance," Aero, Qtr 3, 2009, http://www.boeing.com/commercial/aeromagazine/articles/qtr_03_09/article_03_1.html.

³⁵ Ibid., p. 39.

³⁶ Petition, p. 41.

³⁷ Conference transcript, p. 60 (Conner).

Aircraft manufacturing is a complex process involving many parts, suppliers, and facilities. Production rates, including supply chain requirements, are typically planned two or more years in advance due to the complicated nature of producing aircraft.³⁸ In addition to the length of time required in producing aircraft, the expense involved with design and development, as well as the capital intensive nature of the production equipment, highlight the high costs associated with aircraft manufacturing.³⁹ While economies of scale can be achieved through producing multiple aircraft models at the same facility with the same employees, there are still unique production tools required in the assembly of each individual model variant, which further adds to the cost and complexity of production.⁴⁰

Boeing uses different production lines for different sized civil aircraft. 100- to 150-seat LCA are produced on production lines designed for all single-aisle LCA whereas larger, double-aisle LCA are produced on separate production lines. Switching between aircraft models during manufacturing, even within the same family of aircraft, may disrupt and cause inefficiencies within the production system.⁴¹ Manufacturing differences between different LCA models produced on the shared production lines include modifications to the fuselage, wiring lengths, and landing gear requirements, which have ramifications throughout the entire supply chain.⁴²

All modern aircraft, including 100- to 150-seat LCA, consist of four main components: an airframe, engines, electronic and mechanical systems, and the interior.⁴³ First, an airframe encompasses the physical structure of an aircraft and includes the fuselage (main body of the aircraft), the wings, and the tail (the aft-most section of the aircraft, including all fins and stabilizers). Aluminum, aluminum alloys, and carbon fiber reinforced plastic composite are the main materials used in the construction of airframes.⁴⁴ Second, 100- to 150-seat aircraft use two turbofan engines to power the taxiing, take-off, and flight of the aircraft. All six 100- to 150-seat aircraft models in this proceeding have one engine installed beneath each of the wings.⁴⁵ Third, aircraft systems include all electronic and mechanical systems used for “fight controls; communications; navigation; weather; collision-avoidance; aircraft health monitoring; fuel; in-flight entertainment; and the environmental control system that regulates cabin air supply, temperature, and pressurization.”⁴⁶ Lastly, an aircraft’s interior includes all surface structures, seating, restrooms, and other passenger and crew accommodations. The interior of an aircraft also includes all storage and cargo hold areas.⁴⁷

³⁸ Ibid., p. 28 (Conner).

³⁹ Ibid., p. 36 (Nickelsburg).

⁴⁰ Ibid., p. 45, 62 (Anderson, Conner); Boeing’s postconference brief, p. 13.

⁴¹ Conference transcript, p. 61 (Conner).

⁴² Ibid., p. 62 (Conner).

⁴³ Petition, p. 35.

⁴⁴ Ibid.

⁴⁵ Ibid.

⁴⁶ Ibid.

⁴⁷ Ibid.

DOMESTIC LIKE PRODUCT ISSUES

The petitioner proposes that the Commission define the domestic like product as all domestically-produced 100- to 150-seat LCA, currently produced or marketed, that satisfy the criteria in the scope description.⁴⁸ Respondents counter that the “domestic like product should be the 737 family of aircraft, which represent a continuum of sizes, ranges, operating costs, and other features. There is no clear dividing line at 150 seats or elsewhere.”⁴⁹ They believe the Commission should define the domestic like product as all single-aisle LCA with the ability to hold at least 100 seats.⁵⁰

The Commission’s decision regarding the appropriate domestic product(s) that are “like” the subject imported product is based on a number of factors including: (1) physical characteristics and uses; (2) interchangeability; (3) common manufacturing facilities, production processes, and production employees; (4) customer and producer perceptions; and (5) price. Information regarding these factors is discussed below.⁵¹

Table I-2 presents a summary of U.S. producers’ and U.S. importers’/purchasers’ comparisons of 100- to 150-seat LCA to other single-aisle LCA by factor. *** indicated that 100- to 150-seat LCA and other single-aisle LCA are *** comparable with regard to channels of distribution and *** comparable with regard to physical characteristics and uses as well as interchangeability. *** also reported that 100- to 150-seat LCA and other single-aisle LCA are *** comparable with regard to manufacturing facilities, production processes, and production employees. In addition, *** reported that 100- to 150-seat LCA and other single-aisle LCA are *** comparable with regard to customer and producer perceptions as well as price.

While the responses of U.S. importers/purchasers were varied, the majority of U.S. importers/purchasers indicated that 100- to 150-seat LCA and other single-aisle LCA are somewhat comparable with regard to physical characteristics and uses, interchangeability, customer and producer perceptions, and price. In addition, the majority of U.S. importers/purchasers indicated that 100- to 150-seat LCA and other single-aisle LCA are fully or mostly comparable with regard to manufacturing facilities, production processes, and production employees as well as channels of distribution.

⁴⁸ Ibid., p. 36. According to Boeing, only two such aircraft models currently exist in the United States, which are the Boeing 737-700 and its successor, the 737 MAX 7, which Boeing actively markets and is scheduled to enter into service in 2019. These models are designed to accommodate 126 to 138 passengers, respectively, in a standard two-class cabin configuration. Carrying full passenger loads, the maximum ranges for each model are 3,365 and 3,850 nautical miles, respectively. Therefore, there are clear dividing lines between 100- to 150-seat LCA from other single-aisle LCA. Ibid; conference transcript, p. 47 (Anderson); Boeing’s postconference brief, p. 5.

⁴⁹ Conference transcript, p. 15 (Lichtenbaum); Delta’s postconference brief, pp. 8-9, 14; Bombardier’s postconference brief, p. 3.

⁵⁰ Conference transcript, p. 184 (Aranoff); Bombardier’s postconference brief, p. 4.

⁵¹ Narrative descriptions from U.S. producers and U.S. importers/purchasers concerning the six factors considered for the domestic like product analysis are presented in app. D.

Table I-2
100- to 150-seat LCA: U.S. producers' and U.S. importers'/purchasers' ratings of the comparability of 100- to 150-seat LCA to all other single-aisle LCA

Country pair	U.S. producers				U.S. importers / purchasers			
	Fully	Mostly	Somewhat	Not at all	Fully	Mostly	Somewhat	Not at all
Physical characteristics and uses	***	***	***	***	0	3	6	0
Interchangeability	***	***	***	***	1	1	6	0
Manufacturing facilities, production processes, and production employees	***	***	***	***	2	2	1	0
Channels of distribution	***	***	***	***	4	2	2	0
Customer and producer perceptions	***	***	***	***	1	0	5	1
Price	***	***	***	***	0	1	4	2

Source: Compiled from data submitted in response to Commission questionnaires.

Physical characteristics and uses

Both Airbus Americas and Boeing indicated in their questionnaire responses that 100- to 150-seat LCA are *** to other single-aisle LCA with regard to physical characteristics and uses. Airbus Americas explained that ***. Boeing noted that 100- to 150-seat LCA and other single-aisle LCA ***. Boeing further noted that differences in seating capacity and ranges affect how the different types of commercial aircraft are used with respect to routes in addition to airport locations and conditions.⁵²

U.S. importers/purchasers indicated in their questionnaires responses that 100- to 150-seat LCA are *** to other single-aisle LCA with regard to physical characteristics and uses. *** noted that all single-aisle LCA have similarities with regard to overall design and arrangement in addition to transporting passengers in the commercial aircraft industry. However, seven out of the nine responding U.S. importers/purchasers indicated differences such as overhead bin size, overall seating capacity, maximum take-off weight, shorter fuselage, maximum number of passengers, nautical mile range, and flight routes.

Respondents contend that the entire 737 family shares similar characteristics and uses and a dividing line of 150 seats and a minimum range of 2,900 nautical miles is not significant since the same aircraft can be configured with either more or fewer than 150 seats.⁵³

Interchangeability

*** indicated in their questionnaire responses that 100- to 150-seat LCA are *** with other single-aisle LCA. ***. These specific profit maximization goals of airlines are ultimately the reason why aircraft with these specific characteristics exist.⁵⁴

⁵² Conference transcript, pp. 44-45 (Anderson); Boeing's postconference brief, pp. 10-11.

⁵³ Conference transcript, pp. 184-185 (Aranoff); Delta's postconference brief, p. 10; Bombardier's postconference brief, p. 6.

U.S. importers/purchasers indicated in their questionnaires responses that 100- to 150-seat LCA are *** with other single-aisle LCA. While *** noted that it uses other larger single-aisle LCA on the same routes as 100- to 150-seat LCA, *** explained that 100- to 150-seat LCA and other single-aisle LCA are interchangeable in limited circumstances depending on market demand and weather conditions. However, they are not interchangeable with regard to aspects such as maintenance programs and components, and capabilities in various runway sizes, elevation levels, and temperature levels.

Respondents claim that while there is no interchangeability between single-aisle LCA at the highest and lowest ends of the continuum, there is interchangeability within the smaller size increments depending on, for example, season and time of day that the aircraft is needed.⁵⁵ In addition, Bombardier noted that “certificates issued by authorities like the FAA and Transport Canada allow for crew and pilot interchangeability as well as maintenance interoperability within a product family.”⁵⁶

Manufacturing facilities, production processes, and production employees

*** indicated in its questionnaire response that 100- to 150-seat LCA and other single-aisle LCA are *** manufactured in the same facilities with the same production processes and production employees, while *** indicated that 100- to 150-seat LCA and other single-aisle LCA are *** manufactured in the same facilities with the same production processes and production employees. ***. In addition, Boeing indicated that specific tooling must be used in order to meet FAA requirements, and high learning curve costs are incurred when production shifts between different categories of single-aisle LCA.⁵⁷

U.S. importers/purchasers indicated in their questionnaires responses that 100- to 150-seat LCA and other single-aisle LCA are *** manufactured in the same facilities with the same production employees. *** noted that 100- to 150-seat LCA and other single-aisle LCA are generally manufactured in the same facilities with the same employees. *** indicated they are not familiar with the production processes of single-aisle LCA.

(...continued)

⁵⁴ Conference transcript, pp. 45, 78 (Anderson). In addition, higher operating costs for pilots and flight crew associated with other single-aisle LCA is another factor separating these products from 100- to 150-seat LCA. A pilot’s compensation is partly based on the size of the aircraft and higher seating capacity incurs higher flight crew costs as the FAA requires an additional flight attendant for passenger-carrying aircraft with over 150 seats. Boeing’s postconference brief, p. 12.

⁵⁵ Conference transcript, pp. 185-186 (Aranoff); Bombardier’s postconference brief, p. 8. Delta further contends that interchangeability is reflected in airlines such as Southwest and United since they converted orders from subject 100- to 150-seat LCA (the 737-700 model) to other single-aisle LCA (the larger 737-800 model). Delta’s postconference brief, pp. 11-12.

⁵⁶ Bombardier’s postconference brief, pp. 7-8.

⁵⁷ Conference transcript, pp. 46, 61 (Anderson, Conner); Boeing’s postconference brief, p. 13. Specialized tooling is also required when manufacturing the Boeing 727 MAX 7 model as compared to the 737-700 model. Conference transcript, p. 136 (Conner).

Respondents claim that the entire 737 family is manufactured in common facilities with the same employees and a high degree of the same parts because the 737 models all maintain the same basic design even if they increase incrementally in size.⁵⁸

Channels of distribution

*** indicated in their questionnaire responses that 100- to 150-seat LCA are *** to other single-aisle LCA with regard to channels of distribution. ***. Boeing believes that channels of distribution are not meaningful for the domestic like product analysis.⁵⁹

U.S. importers/purchasers indicated in their questionnaires responses that 100- to 150-seat LCA are *** to other single-aisle LCA with regard to channels of distribution. *** explained that 100- to 150-seat LCA and other single-aisle LCA are generally sold through similar channels of distribution, which include both airlines and leasing companies. Since both the petitioner and respondents agree that the channels of distribution for 100- to 150-seat LCA and other single-aisle LCA are the same, Bombardier claims that this factor supports defining the domestic like product to be a continuum consisting of all 737 aircraft.⁶⁰

Customer and producer perceptions

*** indicated in their questionnaire responses that 100- to 150-seat LCA are *** to other single-aisle LCA, while *** indicated that 100- to 150-seat LCA are *** with regard to market perceptions. Airbus Americas explained that ***. Boeing noted that ***. In addition, Boeing indicated that the industry, which includes a large number of customers, producers, trade publications, and outside analysts, generally treats 100- to 150-seat LCA as a distinct and segregable market.⁶¹

U.S. importers/purchasers indicated in their questionnaire responses that 100- to 150-seat LCA are *** to other single-aisle LCA with regard to market perceptions. While *** noted that there is no difference between marketing practices among 100- to 150-seat LCA and other single-aisle LCA, *** explained that perceptions and demand depend on market conditions. Only *** indicated that 100- to 150 seat LCA and other single-aisle LCA are ***.

Respondents claim that purchasers essentially “see a continuum of products designed to meet a continuum of passenger demand.”⁶²

⁵⁸ Conference transcript, pp. 185-186 (Aranoff); Bombardier’s postconference brief, p. 10.

⁵⁹ Boeing’s postconference brief, p. 14.

⁶⁰ Bombardier’s postconference brief, p. 11.

⁶¹ Conference transcript, pp. 46, 79 (Anderson).

⁶² Conference transcript, p. 186 (Aranoff); Delta’s postconference brief, p. 13; Bombardier’s postconference brief, pp. 12, 14.

Price

*** indicated in their questionnaire responses that prices of 100- to 150-seat LCA and other single-aisle LCA are ***, while *** indicated that prices of 100- to 150-seat LCA and other single-aisle LCA are ***. ***. Boeing further noted that there is a consistent and significant price gap of *** percent on average between historic U.S. pricing for 100- to 150-seat LCA and other single-aisle LCA produced by Boeing.⁶³

U.S. importers/purchasers indicated in their questionnaire responses that the prices of 100- to 150-seat LCA and other single-aisle LCA are ***. While *** explained that other single-aisle LCA cost more but are typically less expensive on a cost-per-seat basis, *** indicated that prices vary depending on factors such as size, performance characteristics, and remaining useful life.

Respondents argue that “there is no clear dividing line along the price continuum, especially, as aircraft pricing is multidimensional and opaque.”⁶⁴

The average unit values of Boeing’s U.S. shipments of 100- to 150-seat LCA ranged from \$*** per unit in 2014 during to \$*** per unit in 2016, ***, while the average unit values of Boeing’s U.S. shipments of other single-aisle LCA ranged from \$*** per unit to \$*** per unit during 2014-16, ***. The average unit values of Boeing’s historical U.S. shipments of 100- to 150-seat LCA, however, ranged from \$*** per unit to \$*** per unit during 2007-13. In addition, the average unit values of Boeing’s historical U.S. shipments of other single-aisle LCA ranged from \$*** per unit to \$*** per unit during 2007-13.

Boeing also provided list price data, which show that prices of 100- to 150-seat LCA produced by Boeing range from \$82.4 million (737-700) to \$92.2 million (737 MAX 7) in 2017. Boeing’s list prices of other single-aisle LCA range from \$98.1 million (737-800) to \$119.2 million (737 MAX 9) in 2017.⁶⁵

⁶³ Boeing’s postconference brief, p. 15.

⁶⁴ Conference transcript, p. 187 (Aranoff); Delta’s postconference brief, pp. 13, 28-29; Bombardier’s postconference brief, p. 14.

⁶⁵ Boeing’s postconference brief, exh. 12, exh. 30. List prices of other single-aisle LCA produced by Boeing also include that of the 737-800 (\$98.1 million), the 737-900ER (\$104.1 million), the 737 MAX 8 (\$112.4 million) and the 737 MAX 200 (\$115.4 million). Ibid.

PART II: CONDITIONS OF COMPETITION IN THE U.S. MARKET

U.S. MARKET CHARACTERISTICS

The U.S. 100- to 150-seat LCA market is characterized by a small number of producers, concentrated and relatively small number of purchasers, high tech long-life assets, and capital intensive production that is subject to scale economies and substantial learning curves. Given these characteristic, there can be a limited annual shipments of these aircraft.¹ According to Boeing, the 100- to 150-seat LCA industry accounts for annual sales of “\$1 billion” in the United States and \$4 billion globally, though sales and shipments can vary substantially from year to year.² In addition, U.S. airlines are leaders in the global aviation market, and the U.S. market has the largest existing (as well as aging) fleets of 100- to 150-seat LCA.³ For this reason, Boeing claims that most of the replacement market globally is in the United States.⁴

According to Boeing, 100- to 150-seat LCA is the smallest category of large civil aircraft. It consists of a standard two-class seating capacity of 100 to 150 seats.⁵ 100- to 150-seat LCA are high-tech capital assets that cost tens of millions of dollars. 100- to 150-seat LCA production is highly-capital intensive, where low-volume/high-value products require billions of dollars to develop and produce, and can be expected to last approximately twenty-five years. Because of the high capital costs and risks, producers often are only able to offer a limited number of product choices. In addition, because 100- to 150-seat LCA producers aim to operate with an order backlog that would take several years to fill, there can be a considerable lag time between orders and deliveries.⁶

Boeing is in the process of developing its first new product offering in the 100- to 150-seat LCA market space since 1993, the Boeing 737 MAX 7, which was launched (i.e., officially announced) in 2011 with deliveries scheduled to begin in 2019.⁷ Bombardier has also introduced its C Series, which is the first aircraft designed clean sheet (not a derivative model) in the single aisle market in three decades.⁸ Bombardier launched the C Series in 2008 and

¹ Apparent U.S. consumption of 100- to 150-seat LCA decreased *** during 2014-16, from *** in 2014 to *** in 2015 to *** in 2016. Overall, apparent U.S. consumption in 2016 was *** percent lower than in 2014. The only commercial shipments of new 100- to 150-seat LCA during this period were by *** selling to ***.

² Conference transcript, p. 11 (Novick).

³ Petition, pp. 72-73.

⁴ Conference transcript, p. 93 (Conner).

⁵ Petition, p. 34.

⁶ Petition, pp. 17, 46.

⁷ Petition, p. 2.

⁸ Conference transcript, p. 269 (Mitchell).

delivered its first C Series LCA to SWISS in June 2016.⁹ In 2016, both the CS100 (108 passengers) and CS300 (130 passengers) received FAA certifications.¹⁰

When asked if there had been a change in products in the market, responses varied based on interpretations of market presence, but responding firms generally identified Bombardier's C Series as recently or currently available in the market. According to Boeing, "***." Bombardier identified the ***.

Purchasers can also meet demand through used or refurbished 100- to 150-seat LCA. As described by Boeing, used aircraft are part of the total economic equation as purchasers evaluate cost-effectiveness, noting that "{w}hen you buy used aircraft, your operating costs are higher because your maintenance costs are higher. You go to new aircraft, you have far less maintenance costs, but then the used aircrafts may be less fuel-efficient."¹¹ According to Boeing, however, airlines generally do not look to the used market for their fleet replacement needs, because used aircraft are not available in sufficient quantities. Instead, airlines typically choose to purchase used and/or refurbished aircraft in order to meet a need for additional capacity that cannot be met by producers of new aircraft in the desired delivery timeframe. Boeing estimates that there are on average *** used and/or refurbished 100- to 150-seat LCA available in the global market in a given year.¹²

According to Boeing, the U.S. market for 100- to 150-seat LCA is subject to unique conditions of competition, including programs requiring intensive long-term planning and years of research and development that cost billions of dollars before production can begin. It can take four to seven year to develop new derivatives. As a result, airline manufacturers shoulder substantial up-front costs and risks without any guarantee of future commercial success.¹³ The need to fund and maintain program development efforts rely on advance orders from customers. Respondents contend, however, that pre-delivery payments "top out at 15 to 20

⁹ Boeing's postconference brief, exh. ER-18.

¹⁰ Conference transcript, p. 156 (Mullot). FAA certification ensures the safety of aircraft before they enter into service. There are four main types: the type certification (design), the production certificate (manufacturing process), the airworthiness certificate (specific units of the aircraft), and the airline operating certificate (operator). Bombardier's postconference brief, app. 29.

¹¹ Conference transcript, p. 110-11 (Anderson). Boeing sells both used and new aircraft.

¹² Boeing's postconference brief, app. 17, 18. According to a May 11, 2016 industry article, Southwest and other U.S. airlines were increasingly demanding second-hand jetliners as low-cost fuel made older, less efficient models more economical to operate. Very low fuel prices and currency fluctuations had reduced incentive to buy more fuel-efficient aircraft. In addition, "{Southwest} saw a glut of deeply discounted Boeing 737-700s as the perfect replacement for smaller Boeing 717s that Southwest planned to offload to Delta." Boeing's postconference brief, exh. ER-62.

¹³ There are various types of risk that are associated with aircraft development, including a manufacturer's capital needs, meeting performance requirements, timely delivery, and ability to make sufficient sales to recover launch costs and earn a profit. In addition, reputational risk could be a significant problem. Reputational risk stems primarily from the willingness of purchasers to make large financial commitments to manufacturers that have not been successful or are entering a new market segment. Glennon Harrison, *Challenge to the Boeing-Airbus Duopoly in Civil Aircraft: Issues for Competitiveness*, Congressional Research Service, July 25, 2011, pp. 7, 10.

percent of the contract value {and this} makes it impossible to finance development costs using pre-delivery payments.”¹⁴ Another condition of competition cited by Boeing and Respondents is that advance orders drive a virtuous cycle where they validate the program in the marketplace and increase the likelihood of future orders.¹⁵ In order to meet demand and maximize returns on investment, producers must develop aircraft that allow for a variety of preferences and meet the needs of the market years in advance. To accomplish this, producers often develop derivative models of 100- to 150-seat LCA that incorporate a limited number of new, high-impact technologies rather than whole-sale product line changes.¹⁶

U.S. IMPORTERS/PURCHASERS

The Commission received nine questionnaire responses from firms that import and/or purchase 100- to 150-seat LCA, including six that bought 100- to 150-seat LCA during January 2014-March 2017 (table II-1).¹⁷ Six responding firms are commercial airline companies, and three are aircraft leasing companies. These firms reported making sporadic purchases for new or used/refurbished subject product from Boeing or Airbus since January 1, 2014, and none from Bombardier.

Table II-1
100- to 150-seat LCA: List of importers/purchasers, their total imports/purchases, by source, January 2014-March 2017

* * * * *

In general, there is a high degree of customer concentration, as the industry consists of a relatively small number of buyers. With only a few potential 100- to 150-seat LCA customers worldwide, annual deliveries are relatively low and sales are concentrated in a few transactions with a few customers placing very large orders. Individual purchases are high value, running into the billions of dollars. The seven largest U.S. airlines by overall fleet size (including larger LCA) that account for the bulk of U.S. demand are American, Delta, Southwest, United, JetBlue, Spirit Airlines, and Frontier Airlines, which, according to Boeing, all have large aging 100- to

¹⁴ Conference transcript, p. 167 (Mitchell); see also Bombardier’s postconference brief (p. 26) stating that “Initial deposits upon execution of a firm order tend to be between 1% and 5% of the contract value, while overall pre-delivery payments do not exceed 15% to 30% of the contract value. Accordingly, the vast majority of the purchase price is paid only upon delivery.”

¹⁵ Petition, p. 1-2. Conference transcript, p. 27 (Conner); Delta’s postconference brief, p. 30-31.

¹⁶ Petition, p. 47.

¹⁷ Of the six responding firms that reported importing and/or purchasing 100- to 150-seat LCA during January 2014-March 2017, *** bought 100- to 150-seat LCA from Boeing (***), *** bought subject 100- to 150-seat LCA from Bombardier (Canada), *** bought from Airbus (***).

150-seat LCA fleets.¹⁸ The leading aircraft leasing companies include GECAS, AerCap, BBAM, SMBC Aviation Capital, and CIT Aerospace.¹⁹

SUPPLY AND DEMAND CONSIDERATIONS

U.S. supply

Domestic production

Boeing is currently the only domestic producer of 100- to 150-seat LCA. Airbus Americas²⁰ commenced aircraft assembly at its Mobile, Alabama plant in July 2015, but *** domestically. In the short term, the domestic industry does not have the ability to respond to changes in demand with changes in the quantity of shipments of U.S.-produced 100- to 150-seat LCA, due to the long delivery times and high level of capacity utilization in the domestic aircraft market. In the longer term, however, the domestic industry appears to have the capability to respond to changes in demand with moderate changes in the quantity of shipments of U.S.-produced 100- to 150-seat LCA. The main contributing factor to this degree of responsiveness of supply is the ability to shift production to or from out-of-scope LCA and the ability to shift shipments from alternate markets. Factors mitigating responsiveness of supply, particularly in the short term, include long order-to-delivery lag times, customer-specific produced-to-order product, and lack of inventories.

Respondents allege that Boeing and Airbus adopted strategies to make and market larger single aisle aircraft that were more profitable for them, thus cannibalizing and abandoning smaller single-aisle aircraft models.²¹ According to Respondents, a 2004 analysis showed that more than 50 percent of departures would not have optimally sized aircraft going forward due in part to the dearth of smaller LCA in the market.²² Respondents allege that Boeing and Airbus abandoned the low end of the single-aisle market, even though demand for these aircraft remained. Because there were no new and economically viable replacements, Respondents contend that airlines extended the service lives of their existing fleet and acquired

¹⁸ Petition, pp. 2, 17, 46, 60.

¹⁹ Boeing's postconference brief, exh. ER-56. Leasing can be a method for airline companies to obtain and/or finance aircraft purchases. Leasing companies purchase new and used/refurbished aircraft, sometimes to facilitate airline aircraft orders by purchasing trade-ins. Airline companies enter into lease arrangements with airline companies.

²⁰ Although Airbus Americas is *** in the United States, certain responses in their U.S. Producer questionnaire have been included in the conditions of competition discussion.

²¹ Conference transcript, pp. 15-16 (Lichtenbaum). Delta notes that Boeing discontinued production of the 717 in 2006, and removed the 737-600 from its catalog in 2012. Delta's postconference brief, pp. 41-2.

²² Conference transcript, p. 155 (Mullot). See also, Bombardier's postconference brief, exh. 30.

used planes. As a result, this low-end of the single aisle market segment has the highest average aircraft age for U.S. carriers.²³

Industry capacity

Because orders for 100- to 150-seat LCA are received years in advance of their delivery date, Boeing's production rate is reportedly set at a level that ensures the most efficient use of workforce, PPE (property, plant, and equipment), and other assets.²⁴ Accordingly, reported capacity utilization is at or around *** percent.²⁵ Essentially, the facility is configured to produce a certain rate per month or rate per year.²⁶ The overall capacity for the domestic industry to produce LCA (including both in-scope 100- to 150-seat LCA and other out-of-scope single aisle LCA) increased between 2014 and 2016, from *** to ***. The share of 100- to 150-seat LCA produced compared to other single aisle LCA decreased during this time, from *** percent of total production (***) in 2014 to *** percent of total production (***) in 2016.

Boeing projected its overall capacity and production of 100- to 150-seat LCA to increase ***. Airbus Americas ***. Overall, U.S. producers projected increases in the total number of LCA produced, from ***. The domestic industry projected that it will ***.

This high level of capacity utilization indicates that U.S. producers do not have the ability to increase production of 100- to 150-seat LCAs in the short term in response to an increase in prices. Boeing reported that ***. Boeing therefore appears to have some potential to increase production of 100- to 150-seat LCA in the longer term in response to an increase in prices.

Alternative markets

Boeing's exports, as a share of total shipments, fluctuated during 2014-16, increasing from *** percent in 2014 to *** percent in 2015, then decreasing to *** percent in 2016. Boeing's total export shipments ***. According to Boeing, the two next-largest markets for aircraft after the United States are China and Europe, which are subject to political pressure to purchase locally produced aircraft.²⁷

²³ Bombardier's postconference brief, p. 18. The average age of in service 737-600 and 700 are 10 and 14 years, respectively, compared to 6 and 4 years for the 737-800 and 900, respectively. Bombardier's postconference brief, exh. 13.

²⁴ Boeing reported that the average duration between order date and delivery date is ***. See "Lead times" in this section of the report for an expanded discussion on lead times.

²⁵ Boeing indicated that ***. Boeing reported that ***.

²⁶ Conference transcript, p. 118 (Anderson).

²⁷ Petition, p. 73.

Inventory levels²⁸

Due to the tightly planned nature of production, U.S. producers hold no inventories, indicating that U.S. producers do not have the ability to respond to changes in demand with changes in the quantity shipped from inventories.

Production alternatives²⁹

Boeing reported that ***. Airbus Americas reported that since it does not produce in-scope LCA *** switch production from other products to 100- to 150-seat LCA.

Supply constraints

Boeing reported that it *** refused, declined, or been unable to supply 100- to 150-seat LCA since January 1, 2014. As of March 31, 2017, Boeing's backlog for the 737 family of LCA was 4,506 planes.³⁰ Bombardier notes that this amount represents a seven-to-eight year backlog.³¹

Subject imports from Canada³²

Bombardier is currently the only Canadian producer and exporter of 100- to 150-seat LCA. Bombardier began working on the C Series in the mid-2000s in order to enter the 100- to 150-seat LCA market, and launched the program in 2008. Bombardier delivered its first 100- to 150-seat LCA in June 2016 to SWISS.³³ Bombardier has not yet exported any 100- to 150-seat LCA from Canada to the United States.³⁴

Based on available information, producers of 100- to 150-seat LCA from Canada do not have the ability to respond to changes in price in the short term, but do have the ability to respond to changes with moderate-to-large changes in the quantity of shipments of 100- to 150-seat LCA to the U.S. market in the longer term. The main contributing factors to this degree

²⁸ Both Boeing and Bombardier stated that product is not produced for inventory; inventory, also known as "white-tails," are not a deliberate part of industry. Conference transcript, p. 86, 260 (Novick, Mitchell).

²⁹ See *Part III* for additional information on alternative products.

³⁰ Boeing, "Commercial Airplanes Fact Sheet," <http://investors.boeing.com/investors/fact-sheets/default.aspx> (accessed on June 2, 2017). Boeing also plans to increase production of the 737 aircraft from 47 units per month in 3Q2017 to 52 units per month in 2018, to 57 units per month in 2019.

³¹ Conference transcript, pp. 17, 190 (Lichtenbaum, Aranoff).

³² For data on the number of responding foreign firms and their share of U.S. imports from Canada, please refer to Part I, "Summary Data and Data Sources."

³³ Petition, pp. 8, 9, 27, 31.

³⁴ Petitioner also reports that "although Republic Airlines has placed an order for 40 CS300s, it is unclear that these orders will ever be delivered in light of Republic Airways' poor financial condition." Petition, pp. 27, 29, n. 86. Bombardier bid data notes that the ***."

of responsiveness of supply are the potential for increasing amounts of available capacity and the ability to shift shipments from alternate markets. Factors mitigating Bombardier's responsiveness of supply include a lack of inventories and the limited ability to shift production to or from alternate products.

Industry capacity

Bombardier reported that its overall capacity and production to produce 100- to 150-seat LCA was *** units in 2014 and 2015, *** in 2016 and *** in January-March 2017. Similar to Boeing, Bombardier's reported that capacity utilization was ***.³⁵ Bombardier projected its overall capacity and production of 100- to 150-seat LCA to increase ***. It projected that its total capacity would increase ***, *** its production of 100- to 150-seat LCA would increase ***, resulting in a projected decrease in capacity utilization from *** percent in 2017 to *** percent in 2021. These reported levels of capacity utilization suggest that Bombardier has very limited ability to increase production of 100- to 150-seat LCAs in the short term in response to an increase in prices, but may have a moderate-to-substantial ability to increase production of 100- to 150-seat LCA in the long term.

Bombardier opened the final assembly line for the C Series in 2014 in Mirabel, Quebec. Bombardier expects to increase production capacity from ***. Bombardier reportedly has 243 orders for its C Series, of which 108 are at risk of delay or cancellation.³⁶

Alternative markets

Bombardier reported shipping *** to ***, and ***. It projected that its shipments to these alternative markets will decrease from *** percent in 2017 to *** percent in 2021, while its shipments to the U.S. market and its home market will both increase, from *** percent in 2017 to *** and *** percent in 2021, respectively.

Petitioner argues that because Canada's domestic market is too small to absorb the production volumes required for the program to succeed, the C Series program must be "export oriented, with a focus on the U.S. market."³⁷ In developing its forecasts, Bombardier notes that U.S. and Canadian airlines effectively compete with each other, so it considers them as one North American market.³⁸ Additionally, because purchasers in China and Europe are subject to political pressure to purchase locally produced aircraft, the C Series will be all the more dependent on the U.S. market.³⁹

³⁵ Bombardier reported attempting to maintain a book-to-bill ratio of ***.

³⁶ Petition, pp. 10-11.

³⁷ Petition, pp. 67, 72.

³⁸ Conference transcript, p. 196 (Mitchell).

³⁹ Petition, p. 73.

Inventory levels⁴⁰

Similar to Boeing, Bombardier reported holding no inventories of 100- to 150-seat LCA, indicating that Bombardier has limited ability to respond to changes in demand with changes in the quantity shipped from inventories.

Production alternatives

Bombardier reported that it could not switch production from 100- to 150-seat LCA to other products.⁴¹ Bombardier produces a number of other out-of-scope aircraft, ***.

Supply constraints

Bombardier reported ***. ***.

Nonsubject imports

According to questionnaire data, nonsubject imports *** accounted for *** imports of new 100- 150-seat LCA since 2014.

Airbus launched its A319 (currently known as the A319ceo) in 1993, and it is scheduled to remain in production through 2018.⁴² The A319neo was launched in 2010, and is scheduled to enter into service in 2018.⁴³ Although there are emerging aircraft producers in China and Russia, these producers continue to face challenges, including getting orders from established carriers, budget and schedule over-runs, and delays in establishing a track record of reliable, safe, and trouble-free operation.⁴⁴

U.S. demand

Based on available information, the overall demand for 100- to 150-seat LCA is likely to experience small-to-moderate changes in response to changes in price. The main contributing factor to this is the availability of substitutes (namely smaller or larger aircraft), the ability of purchasers to extend aircraft service life in the short-term, and some ability to alter networks to optimize returns based on a different cost structure (in the longer-term); demand responsiveness is mitigated, however, by the economic viability of substitute aircrafts.

⁴⁰ Both Boeing and Bombardier stated that product is not produced for inventory; inventory, also known as “white-tails,” are not a deliberate part of industry. Conference transcript, p. 86, 260 (Novick, Mitchell).

⁴¹ Other aircraft produced by Bombardier are regional aircraft, not LCA.

⁴² Petition, p. 30.

⁴³ The term “neo” stands for new engine option, and the term “ceo” stands for current engine option. Petition, p. 30.

⁴⁴ Deloitte, “2017 Global aerospace and defense sector outlook,” 2017, p. 5.

According to Boeing, demand for new 100- to 150-seat LCA is driven by (1) replacement demand – the need to replace aging aircraft, and (2) growth demand – the need to grow fleet size. Replacement demand can be projected based on the age of aircraft in airline fleets, and based on Boeing’s projections, U.S. airlines will require approximately *** new 100- to 150-seat LCA delivered by 2028. Given the typical lag between orders and deliveries, “it is highly likely that orders to replace most of these units will be made in the next five years.”⁴⁵ In addition, Boeing estimates that the 100- to 150-seat LCA will account for ***.⁴⁶

Demand for 100- to 150-seat LCA depends on demand by airline and airplane leasing companies for 100- to 150-seat LCA, which in turn is driven by passenger air travel demand. In addition to economic and industry indicators, Delta notes that demand is also driven by the specific “mission profile” of each airline as it evaluates its operations, network, and fleet to meet current and future needs.⁴⁷ Economic indicators and airline industry demand drivers show steady growth during 2014-16.

Passenger air travel is largely affected by growth in gross domestic product (GDP), consumer confidence, and disposable income.⁴⁸ In general, disposable income and GDP have increased steadily since 2007, while consumer sentiment dropped during the Great Recession (2008-09) and has been rising intermittently since (figure II-1). Between the first quarter of 2007 and the first quarter of 2014, consumer sentiment decreased by 12.3 percent, while disposable income and GDP increased by 8.7 and 19.6 percent, respectively. Between the first quarter of 2014 and the first quarter of 2017, consumer sentiment, disposable income, and GDP all increased by 20.1, 9.5, and 11.6 percent, respectively.

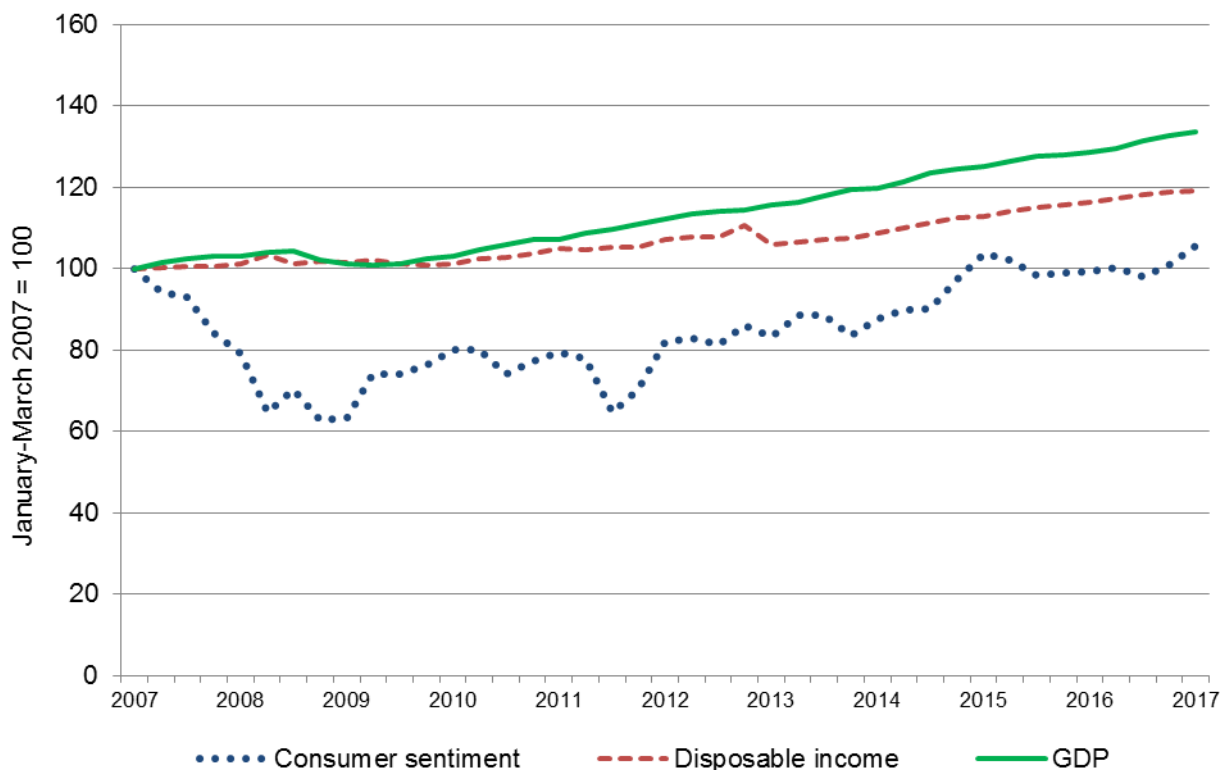
⁴⁵ Boeing’s postconference brief, app. 3-4.

⁴⁶ “***.” Boeing’s postconference brief, app. 15-16. According to an Oliver Wyman market forecast, “Small narrow-bodies with a seat count ranging between 100 and 150 seats currently make up 23% of the passenger narrow-body fleet. Only 11% of narrow-bodies are forecast to be in this size in 2027.” Boeing’s postconference brief, exh. ER-6.

⁴⁷ Delta’s postconference brief, p. 15.

⁴⁸ In developed markets, demand for essential travel has been met, so growth comes from discretionary travel, and GDP per capita matters less. Other factors such as the availability of vacation days earned, the funds needed to travel, consumer confidence, service pricing, and service quality have a greater impact on demand. Boeing, “Current Market Outlook 2016–2035,” p. 22.

Figure II-1
Demand driving factors: Indexes of consumer sentiment, disposable income, and GDP in the United States, quarterly, January 2007-March 2017



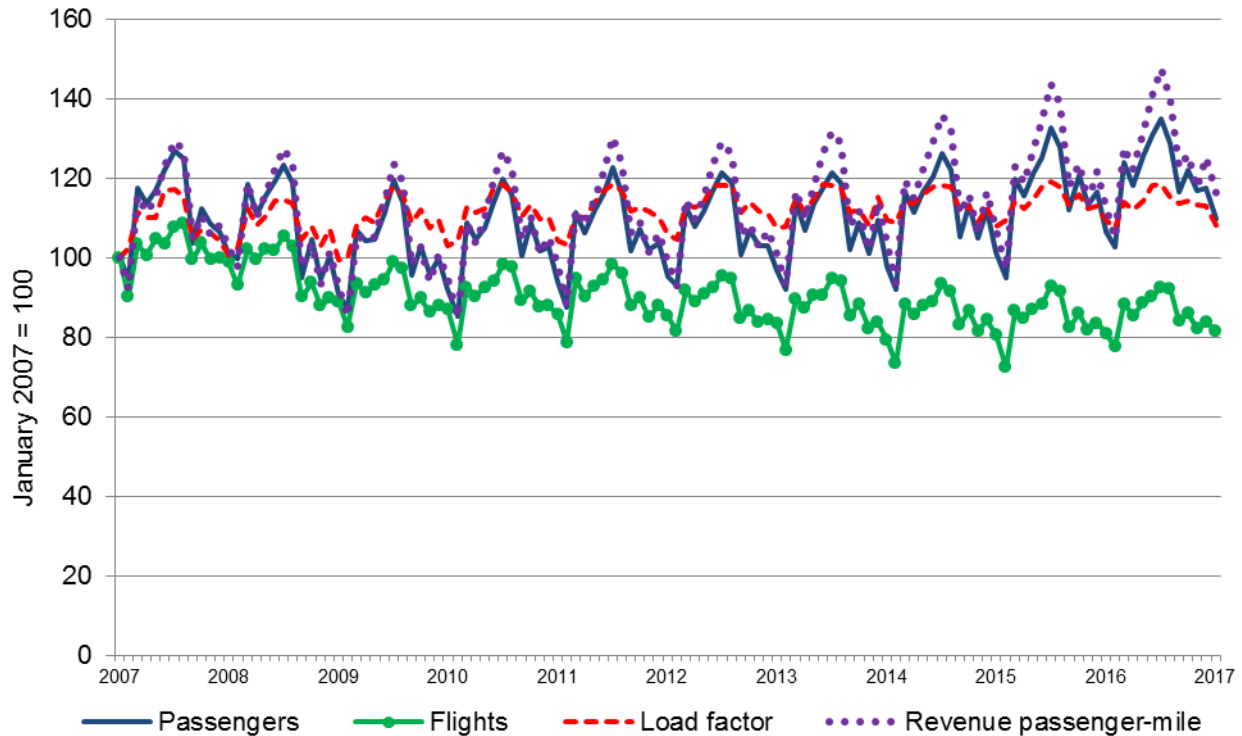
Source: St. Louis Federal Reserve, Federal Reserve Economic Data (FRED). Retrieved May 9, 2017.

According to data collected from the airline industry, the total number of passengers, load factor,⁴⁹ and revenue passenger-mile⁵⁰ have all increased since 2007, while the total number of flights has decreased (figure II-2). Between January 2007 and January 2014, the total number of passengers and flights decreased, by 2.2 and 20.6 percent, respectively, while load factor and revenue passenger-mile both increased, by 9.6 and 3.8 percent, respectively. Between January 2014 and January 2017, the total number of passengers, flights, and revenue passenger-mile all increased, by 12.2, 2.6, and 12.0 percent, respectively, while load factor decreased by 1.1 percent. The decreasing number of flights and increasing load factor may have affected the overall demand for aircraft as airlines rationalize and optimize their networks.

⁴⁹ Load factor, which measure the number of seats sold in terms of total seats available, is calculated by dividing revenue passenger-miles by available seat miles.

⁵⁰ Revenue passenger-mile is calculated by multiplying the number of passengers by the distance flown.

Figure II-2
Airline data: Indexes of total passengers, total flights, total load factor, and total revenue passenger-miles among all U.S. carriers, monthly, January 2007-January 2017



Source: Bureau of Transportation Statistics, T-100 Market data. Retrieved May 9, 2017.

Business cycles

No firm reported that the market for 100- to 150-seat LCA was subject to business cycles, but *** U.S. producers *** and 2 of 6 importers/purchasers indicated that the market was subject to distinct conditions of competition. *** reported that ***.⁵¹ *** reported that the 100- to 150-seat LCA market was not subject to business cycles or distinct conditions of competition.⁵² Importer/purchaser *** reported that used aircraft compete with new aircraft in the 100- to 150-seat LCA market.

⁵¹ ***.

⁵² Bombardier discusses several conditions of competition in its postconference brief. See Bombardier's postconference brief, pp. 17-31.

Lifecycle costs

100- to 150-seat LCA have long life expectancies; life expectancy estimates ranged from 20 to 30 years. Respondents estimated that the purchase price of a 100- to 150-seat LCA typically represents at most 25 percent of the direct operating costs over the airplanes life.⁵³ The subsequent operating costs represent the large majority of the lifetime cost of a plane—about three times the initial purchase price.⁵⁴

Lifecycle costs, or the sum of all recurring and one-time costs over the full life span of a product, are an important factor in the purchase of 100- to 150-seat LCA. Firms were asked to identify which factors purchasers consider in determining 100- to 150-seat LCA lifecycle costs. *** reported that the most critical factors that contribute to lifecycle costs are expected operating costs; fuel efficiency; pilot and crew classification and requirements; pilot and crew training costs; maintenance, repair, and overhaul (“MRO”) costs; operational reliability; and residual value.⁵⁵ Among other responding importers/purchasers, the most common responses were maintenance costs (cited by 4 firms), fuel burn/fuel efficiency (4 firms), purchase price (3 firms) and financing costs retrofitting/refurbishment for used aircraft (2 firms).⁵⁶ *** reported that firms will consider cash operating costs, ownership/financing costs, support costs, crew transition/training costs, and residual value.

Demand trends⁵⁷

*** responding U.S. producers and a plurality of responding importers/purchasers reported that demand for 100- to 150-seat LCA in the United States had fluctuated since January 1, 2014 (table II-2). Bombardier reported that ***.

⁵³ Conference transcript, p. 165 (Mitchell). Delta notes that aircraft acquisition costs represents less than 20 percent of the total operating (i.e., “seat”) costs. Delta’s postconference brief, p. 21.

⁵⁴ Bombardier’s postconference brief, p. 23.

⁵⁵ “Although maintenance, repair, and overhaul (MRO) spending generally amounts to less than 10% of total annual operating expenses, long lasting assets, such as airframes and engines, require ongoing maintenance and repairs, as well as overhauls as planes age. Over the course of an aircraft’s lifespan, engines account for 46% of maintenance, repair, and overhaul (MRO) spending, while airframes account for the rest.” Glennon Harrison, *Challenge to the Boeing-Airbus Duopoly in Civil Aircraft: Issues for Competitiveness*, Congressional Research Service, July 25, 2011, p. 16.

⁵⁶ One firm each also named the following factors: training costs, sparing costs (costs associated with maintaining spare engines), operational costs, passenger variable costs, landing and navigation fees, redeployment costs, depreciation, and anticipated costs for lessors.

⁵⁷ Although Airbus Americas is not currently producing 100- to 150-seat LCA in the United States, certain responses in their U.S. Producer questionnaire have been included in the conditions of competition discussion.

Table II-2
100- to 150-seat LCA: Firms' responses regarding U.S. demand and demand outside the United States, by number of responding firms

Item	Increase	No change	Decrease	Fluctuate
Demand in the United States				
U.S. producers	***	***	***	***
Importers/purchasers	2	0	1	3
Foreign producers	***	***	***	***
Demand outside the United States				
U.S. producers	***	***	***	***
Importers/purchasers	3	0	0	1
Foreign producers	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Boeing reported that demand for 100- to 150-seat LCA is affected by the age of in-service fleets and the development cycles of new models, and since airlines have some flexibility in when they purchase new aircraft to replace or expand their fleet, they tend to purchase more when pricing conditions are perceived to be favorable and uncertainty about their current fleet and the viability of new aircraft declines.⁵⁸

While demand for new models of 100- to 150-seat LCA (Boeing's 737 MAX 7, Bombardier's C Series, and Airbus' A319neo) was lower during January 2014 through March 2017, Boeing reported that it expects demand for 100- to 150-seat LCA to increase in the near term and extending over several years in the future.⁵⁹

*** reported that demand for 100- to 150-seat LCA has generally decreased in the United States due to their high operating costs, and that demand has increased for 76-seat large regional jets (such as the Embraer E175 and Bombardier CRJ-900) because they can be operated at lower costs at regional airlines.

*** reported that demand trends for 100- to 150-seat LCA generally track the demand for air transportation services, and that the demand for air transportation services in U.S. markets has increased on average by approximately 6.3 percent per year since 2014 (based on Department of Transportation O&D passenger survey data).⁶⁰

⁵⁸ Petition, p. 49.

⁵⁹ Conference transcript, pp. 35-36 (Nickelsburg).

⁶⁰ "The Airline Origin and Destination Survey is a 10% sample of airline tickets from reporting carriers collected by the Office of Airline Information of the Bureau of Transportation Statistics. Data includes origin, destination and other itinerary details of passengers transported. This database is used to determine air traffic patterns, air carrier market shares and passenger flows." *Department of Transportation website, Bureau of Transportation Statistics, Overview*, https://www.transtats.bts.gov/DatabaseInfo.asp?DB_ID=125, accessed on May 25, 2017.

Substitute products

U.S. importers/purchasers were asked to rate the degree to which other types of aircraft (including regional civil aircraft, other single aisle LCA, all other LCA, and other aircraft) can be substituted for 100- to 150-seat LCA. As shown in table II-3, firms reported that other single-aisle LCA can “sometimes” or “frequently” be substituted for 100- to 150-seat LCA, but all other aircraft can “sometimes” or “never” be substituted for 100- to 150-seat LCA.

Table II-3

100- to 150-seat LCA: Substitutability with other types of aircraft, as reported by U.S. importers/purchasers, by number of responding firms

Type of substitute	Always	Frequently	Sometimes	Never
Regional civil aircraft	0	0	5	1
Other single aisle LCA	0	2	4	0
All other LCA	0	0	3	3
Other aircraft	0	0	2	0

Source: Compiled from data submitted in response to Commission questionnaires.

*** reported that while 200- to 300-seat aircraft are not generally substitutable for 100- to 150-seat LCA, other larger single-aisle aircraft (such as a Boeing 737-800) can be substituted for 100- to 150-seat LCA (such as an Airbus A319) when the larger aircraft takes over a route with high demand and reduces the number of trip frequencies. It added that it is possible to substitute a smaller regional aircraft (such as an Embraer E175) for a 100- to 150-seat LCA and increase the trip frequencies. *** reported that is also possible to substitute an A319 with a Boeing 757 in some high altitude, hot, or short-runway markets.

Similar to ***, *** reported that some larger aircraft are substitutes during periods of expected higher demand. It also reported that the 110-seat Bombardier CS100 can be an alternative to slightly smaller LCA (such as the Embraer 190) on the low end of the size range, and that some larger two-class regional jets (such as the 76-seat Embraer ERJ-175 or the 76-seat Bombardier CRJ-900) are possible alternatives to the 100- to 110-seat mainline LCA on some routes. *** also reported that due to Boeing 737-700s’ profile as a powerful, high performance aircraft for its size but with significant trade-offs (such as less fuel efficiency and higher crew costs), it only uses them on routes with high altitude take-offs, short runways, or both.

Four importer/purchasers reported how much they used 100- to 150-seat LCA on their routes.⁶¹ Reported use of subject aircraft in their networks varied substantially. Airline companies reported using subject aircraft on *** percent (***), *** percent (***), *** percent (***), and *** percent (***) of their network measured by routes. They also reported using subject aircraft on *** percent (***), *** percent (***), *** percent (***), and *** percent (***) of their network measured by total miles. When asked for the percent of routes for which

⁶¹ Two airlines and the three leasing companies did not provide responses.

larger or smaller aircraft could be substituted for 100- to 150-seat LCA, United responded *** percent for ***; Delta responded *** percent for larger aircraft, but only *** percent for smaller aircraft; and Southwest responded *** percent for larger aircraft, and *** percent for smaller aircraft.⁶²

According to Boeing, the 100- to 150-seat LCA is optimal for a large number of routes operated by U.S. airlines that include many less populous destinations, because this model allows for more frequent flights with few passengers, has lower pilot costs, and can serve airports with shorter or obstacle-impaired runways.⁶³ In addition, because of the seating capacities of 100- to 150-seat LCA, other Boeing large civil aircraft are significantly larger and would force the customer to bear higher operating costs without any passenger revenue benefits. “*** from the perspective of the manufacturer.”⁶⁴

SUBSTITUTABILITY ISSUES

The degree of substitution between domestic and imported 100- to 150-seat LCA depends upon such factors as relative prices, quality (e.g., reliability of supply, defect rates, etc.), and conditions of sale (e.g., price discounts/rebates, lead times between order and delivery dates, payment terms, product services, etc.). Based on available data, staff believes that there is moderate-to-high degree of substitutability between domestically produced 100- to 150-seat LCA and Canadian-produced 100- to 150-seat LCA.

Delivery duration and schedule management

Boeing reported that the typical duration between an orders and the delivery for one of its new 100- to 150-seat LCA is ***.⁶⁵ Boeing reported that ***. Boeing also reported that ***. It also reported ***. Additionally, Boeing reported that ***.

Bombardier reported that its typical lead time is ***. It stated that ***. Bombardier also reported that ***.

Importance of specific purchasing factors

Importers were asked to rate the importance of 22 factors in their purchasing decisions (table II-4). The factors rated as “very important” by 5 of 7 responding firms were lifetime operating costs (seat and trip), maintenance costs, and seat capacity. The factors rated as “very

⁶² American responded that ***.

⁶³ Conference transcript, p. 34 (Nickelsburg).

⁶⁴ Petition, p. 44.

⁶⁵ As noted in the conference, there are two types of lags associated with obtaining aircraft. Specifically on the supply side, first there is a certain amount of lag time associated with obtaining all the parts producers need to assemble an aircraft (built-in manufacturing lag). Second, there is the lag associated with backlog and the multi-year queue of aircraft awaiting production. Conference transcript, pp. 264-65 (Aranoff).

important” by 4 of 7 responding firms were availability/backlog, commonality with existing fleet, delivery terms, ***.⁶⁶ The factors rated as “not important” by at least half of responding importers included prior domestic market sales and residual value guarantees (5 firms each), and trade-in commitments (4 firms).⁶⁷

Table II-4
100- to 150-seat LCA: Importance of purchase factors, as reported by U.S. importers, by factor

Factor	Very important	Somewhat important	Not important
Availability/backlog	4	2	1
Cabin comfort	2	3	2
Commensurate pricing (i.e., most favored customer agreement)	2	1	3
Commonality with existing fleet	4	1	2
Delivery terms	4	1	2
Emissions requirements	1	4	1
Engine size	1	2	3
Entry-into-service support	2	2	2
Lifetime operating costs (seat and trip)	5	0	2
Maintenance costs	5	1	1
Noise requirements	1	4	1
Payment terms	3	1	2
Performance (landing, take-off, range)	4	1	1
Price	4	1	1
Prior domestic market sales	1	0	5
Reduced fuel requirements	4	1	1
Residual value guarantees	1	0	5
Seat capacity	5	1	1
Spare parts	2	2	2
Superior technology	1	4	1
Trade-in commitments	2	0	4
Training support	2	2	2

Source: Compiled from data submitted in response to Commission questionnaires.

Three firms (***) provided explanations for the roles these factors play in their bidding and purchasing decisions. Availability/backlog and delivery terms were reported to be very important by each of these firms as initial purchasing factors; *** reported that if an aircraft is not available in the time frame required, it will not be considered. *** also reported that training support is very important, particularly if it is the first of the type in the fleet (***). In terms of operational considerations, lifetime operating costs (seat and trip) was rated as very

⁶⁶ *** rated each of the 22 factors as “very important” and its responses are included.

⁶⁷ *** rated 21 of the 22 factors as “not important” (***) and its responses are included.

important by each of these firms, with *** stating that it was one of the most important factors, *** reporting that it was a component of maintenance planning, and *** reporting that it was a key analytical consideration in its purchasing decisions. Each of these firms also reported maintenance costs as very important, with *** reporting that it was the same as operating costs, *** reporting that it was part of maintenance planning, and *** reporting that it was factored into the lifetime operating cost analysis. Seat capacity was also rated as very important by each firm, with *** reporting that it was similar to its performance/mission requirements and that it selects aircrafts based on this criteria, *** reporting that it was part of revenue planning, and *** reporting that an aircraft must meet the intended mission profile in order to be considered for purchase. Each firm also rated performance (landing, take-off, range), price, and reduced fuel requirements as very important aspects to their operating cost analyses.

Another important factor in purchasing pattern decisions is fleet composition and fleet complexity.⁶⁸ For airline companies, fleet complexity provides flexibility with different aircraft, but also increases costs because the variety of aircraft requires additional support, different parts inventories, and various different training programs for the crew and maintenance personnel. Fleet complexity can result from airline intent or by merger. An airline or leasing company's fleet complexity also affects producers. If the airline already has aircraft from different producers, producers are better able to compete with each other.⁶⁹ Petitioner notes that fleet complexity or commonality is more important for smaller airlines where the cost of multiple types of planes can be costly. However, for larger airlines, particularly those that developed complex fleets due to industry mergers and consolidation, commonality and the cost

⁶⁸ "Fleet composition choice is one of the most important strategic decisions that airlines have to face, not only because of the huge investment deriving from a new aircraft purchase and the long payback period, but also because this choice affects their operating costs and their strategy in selecting which routes to serve. The challenge in fleet planning is to balance the benefits of a uniform fleet (in terms of same aircraft model and same engine type) and the choice of different aircrafts for different routes." Carolina Billitteri and Giovanni Perrone, "How do airlines preferences about engines influence the competition in the commercial aircraft industry: an empirical analysis," *Proceedings of the 2011 International Conference on Industrial Engineering and Operations Management*, Kuala Lumpur, Malaysia, January 22 – 24, 2011, p. 718.

⁶⁹ "Fleet complexity has direct and indirect effects on aircraft manufacturers. Aircraft manufacturers have found it easier to compete against one another for an airline's business if the airline owns various models of airplanes made by multiple aircraft manufacturers. Aircraft manufacturers typically work closely with launch customers to create an airplane that meets customer requirements. This has frequently led to bidding wars among major aircraft makers, which sometimes offer airplanes to launch customers at unrealistically low prices, which then requires the manufacturer to sell many more planes to reach a breakeven point. Conversely, an airline that builds its network around one manufacturer/one type of aircraft creates a network effect that results in 'lock-in.' A low-cost carrier with a network based on one aircraft model has little incentive to purchase a comparable airplane from another manufacturer, even if the upfront price of the alternative airliner is attractive." Glennon Harrison, *Challenge to the Boeing-Airbus Duopoly in Civil Aircraft: Issues for Competitiveness*, Congressional Research Service, July 25, 2011, pp. 8-9.

of complexity becomes less important in affecting purchasing decisions.⁷⁰ For example, Delta notes that it is a “believer in a diversified fleet;” having aircraft from every major manufacturer allows it to closely match its fleet to its specific mission profile.⁷¹

Changes in purchasing patterns

Importers/purchasers were asked about changes in their purchasing patterns from different sources since 2014. Most firms reported not purchasing from any source during January 2014 through March 2017 (table II-5). Among firms that did report purchasing 100- to 150-seat LCA during this time, most reported either constant or fluctuating purchases. A plurality of firms (three of five) reported fluctuating domestic purchases, while one firm reported increasing domestic purchases and one reported constant domestic purchases; one firm reported increasing purchases from Canada, and two firms reported constant purchases from the European Union. One firm also reported fluctuating purchases from other sources. No firm reported decreasing purchases from any source.

Table II-5
100- to 150-seat LCA: Changes in purchase patterns from U.S., subject, and nonsubject countries

Source of purchases	Did not purchase	Decreased	Increased	Constant	Fluctuated
United States	4	0	1	1	3
Canada	7	0	1	0	0
European Union	5	0	0	2	0
Other	7	0	0	0	1

Source: Compiled from data submitted in response to Commission questionnaires.

Among the firms reporting increasing purchases, *** reported increasing its purchases of ***,⁷² and *** reported ***. *** also reported that ***.

Comparison of U.S.-produced and imported 100- to 150-seat LCA

In order to determine whether U.S.-produced 100- to 150-seat LCA can generally be used in the same applications as imports from Canada, the European Union, and other nonsubject countries, U.S. producers and importers/purchasers were asked whether the products can always, frequently, sometimes, or never be used interchangeably. As shown in table II-6, *** U.S. producers and the majority of importers/purchasers reported that 100- to 150-seat LCA from the United States is “always” interchangeable with 100- to 150-seat LCA from Canada, the European Union, and other nonsubject sources.

⁷⁰ Conference transcript, p. 125 (Nickelsburg), and Boeing’s postconference brief, app. 33.

⁷¹ Delta’s postconference brief, p. 18.

⁷² ***.

Table II-6
100- to 150-seat LCA: Interchangeability between 100- to 150-seat LCA produced in the United States and in other countries, by country pair

Country pair	Number of U.S. producers reporting				Number of U.S. importers/purchasers reporting			
	A	F	S	N	A	F	S	N
U.S. vs. subject countries: U.S. vs. Canada	***	***	***	***	4	1	1	0
Nonsubject countries comparisons: U.S. vs. European Union	***	***	***	***	4	1	2	0
U.S. vs. other nonsubject	0	0	0	0	2	1	0	0
Canada vs. European Union	***	***	***	***	4	1	1	0
Canada vs. other nonsubject	0	0	0	0	2	1	0	0
European Union vs. other nonsubject	0	0	0	0	2	1	0	0

Note.—A=Always, F=Frequently, S=Sometimes, N=Never.

Source: Compiled from data submitted in response to Commission questionnaires.

In additional comments, *** reported that while the Embraer E190 and E195 models are out of scope according to the definitions outlined in this investigation, they are substitutable with Bombardier’s CS100.⁷³ *** elaborated that while Boeing’s 737-700 aircraft are useful in certain unique mission profiles, such as routes requiring take-offs on short runways or at high elevation airports, it is an uneconomical alternative to the Airbus A319 or Bombardier CS300 due to its comparatively poorer fuel efficiency and heavier weight.⁷⁴

Bombardier reported that 100- to 150-seat LCA from the United States were ***, and that 100- to 150-seat LCA from Canada were **. It elaborated that the Boeing 737 and Airbus 320 aircrafts do not compete with its C Series due to the following factors: **. It also stated that **.

Producers and importer/purchasers were also asked to assess how often differences other than price were significant in sales of 100- to 150-seat LCA from the United States, Canada, the European Union, or other nonsubject countries. As presented in table II-7, *** reported that factors other than price are ** significant when comparing 100- to 150-seat LCA from all sources, while ** reported that they “sometimes” were significant for all country comparisons. Among importers/purchasers, either a plurality of firms reported that factors other than price were “sometimes” significant, or an equivalent number reported that they were “always” or “sometimes” significant. No firm reported that factors other than price were “never” significant.

⁷³ ***.

⁷⁴ *** added that Boeing’s new 737 MAX 7 aircraft may eventually provide an additional alternative, but that it is not scheduled to be available until at least 2019.

Table II-7

100- to 150-seat LCA: Significance of differences other than price between 100- to 150-seat LCA produced in the United States and in other countries, by country pair

Country pair	Number of U.S. producers reporting				Number of U.S. importers/purchasers reporting			
	A	F	S	N	A	F	S	N
U.S. vs. subject countries: U.S. vs. Canada	***	***	***	***	2	1	2	0
Nonsubject countries comparisons: U.S. vs. European Union	***	***	***	***	2	1	3	0
U.S. vs. other nonsubject	0	0	0	0	1	0	2	0
Canada vs. European Union	***	***	***	***	2	1	2	0
Canada vs. other nonsubject	0	0	0	0	1	0	2	0
European Union vs. other nonsubject	0	0	0	0	1	0	2	0

Note.--A = Always, F = Frequently, S = Sometimes, N = Never.

Source: Compiled from data submitted in response to Commission questionnaires.

In describing the significance of factors other than price, *** stated that factors other than price (such as fuel efficiency) are typically monetized in a customer's evaluation of the net present value (NPV) of producers' competing bids, and that this provides parties with a well-understood framework for using price discounts to improve the attractiveness of bids. *** stated that ***, it sees the following non-price factors as being important in the 100- to 150-seat LCA market: ***. Among responding importers/purchasers, three identified fuel burn/fuel efficiency as an important non-price factor, two identified purchase price, two identified delivery schedule/availability, two identified maintenance costs, and one firm each identified the following other non-price factors: operating history, crew costs, fleet commonality, considerations for new interiors (such as larger bins and wider seats), and expected total cost of ownership.

PART III: U.S. PRODUCERS' PRODUCTION, SHIPMENTS, AND EMPLOYMENT

The Commission analyzes a number of factors in making injury determinations (see 19 U.S.C. §§ 1677(7)(B) and 1677(7)(C)). Information on the subsidies and dumping margins was presented in *Part I* of this report and information on the volume and pricing of imports of the subject merchandise is presented in *Part IV* and *Part V*. Information on the other factors specified is presented in this section and/or *Part VI* and (except as noted) is based on the questionnaire responses of one firm, Boeing, that accounted for *** U.S. production of 100- to 150-seat LCA during 2016.¹

U.S. PRODUCERS

The Commission issued a U.S. producer questionnaire to two firms, *** based on information contained in the petition and other available industry resources. Boeing, provided useable data on its productive operations on 100- to 150-seat LCA. Staff believes that this response represents all U.S. production of 100- to 150-seat LCA.

Table III-1 lists Airbus' and Boeing's production locations, positions on the petition, and shares of total production.

**Table III-1
100- to 150-seat LCA: Airbus and Boeing, their positions on the petition, production locations, and shares of reported production, 2016**

Firm	Position on petition	Production location(s)	Share of production (percent)
Airbus Americas	***	Mobile, AL	***
		Helena, MT Landon, SC Salt Lake City, UT Auburn, WA Everett, WA Gresham, WA Puyallup, WA Renton, WA Seattle, WA Tukwila, WA	
Boeing	Petitioner		***
Total			100.0

Source: Compiled from data submitted in response to Commission questionnaires.

¹ Airbus Americas indicated in its U.S. producer questionnaire response that *** in its Mobile, Alabama facility that has delivered A321 models and is ramping up to produce A320 models. "Airbus Begins Production of First U.S.-Built A320 in Mobile,"

<http://www.airbus.com/company/americas/newsroom/newsroom-single/detail/airbus-begins-production-of-first-us-built-a320-in-mobile/>, May 8, 2017.

Related firms

Airbus Americas, owned by Airbus, a foreign producer of the subject merchandise. In addition, as discussed in greater detail below, ***.

Changes in operations

Table III-2 presents Airbus' and Boeing's reported changes in operations since January 1, 2014.

Table III-2
100- to 150-seat LCA: Airbus' and Boeing's reported changes in operations, since January 1, 2014

* * * * *

U.S. PRODUCTION, CAPACITY, AND CAPACITY UTILIZATION

100- to 150-seat LCA

Table III-3 and figure III-1 present Boeing's production, capacity, and capacity utilization. Boeing's aggregate capacity and production decreased from *** units in 2014 to *** units in 2015, and remained the same in 2016. Capacity utilization remained at *** percent during 2014-16. Boeing explained that ***.²

Table III-3
100- to 150-seat LCA: Boeing's production, capacity, and capacity utilization, 2014-16

* * * * *

Figure III-1
100- to 150-seat LCA: Boeing's production, capacity, and capacity utilization, 2014-16

* * * * *

Alternative products

Table III-4 presents Boeing's overall capacity and production on the same equipment as 100- to 150-seat LCA during 2014-16. Boeing reported that *** of its production consisted of other single-aisle LCA. Production of 100- to 150-seat LCA accounted for *** percent of total production of aircraft produced on the same equipment using the same employees as other

² Boeing also explained that capacity utilization is based on existing orders and at no point is there excess capacity. Capacity, according to Boeing, is linked to the manufacturer's ability to win orders. Conference transcript, p. 118 (Anderson).

single-aisle LCA during 2016. Production of these larger aircraft accounted for *** percent of total aircraft production using the same equipment during 2016. These aircraft include 737 models such as ***.³

**Table III-4
100- to 150-seat LCA: Boeing’s overall plant capacity and production on the same equipment as subject production, 2014-16**

* * * * *

Table III-5 presents Boeing’s projected overall capacity and production on the same equipment as 100- to 150-seat LCA during 2017-21. Boeing reported that the *** of its production *** during 2017-21 and the share of production of 100- to 150-seat LCA will decrease to *** percent by 2021.

**Table III-5
100- to 150-seat LCA: Boeing’s overall plant capacity and production on the same equipment as subject production, 2014-16**

* * * * *

Table III-6 presents Airbus’ and Boeing’s overall plant capacity and production of single-aisle LCA. Since Airbus *** 100- to 150-seat LCA during 2014-16, the production data of 100- to 150-seat LCA are ***.⁴

**Table III-6
100- to 150-seat LCA: Airbus’ and Boeing’s overall plant capacity and production of single-aisle LCA, 2014-16**

* * * * *

Table III-7 presents data on Airbus’ and Boeing’s projected overall capacity and production of single-aisle LCA. Projected production of 100- to 150-seat LCA accounts for *** percent of total production of aircraft produced on the same equipment using the same employees as other single-aisle LCA during 2017-21.⁵ Projected production of larger single-aisle aircraft accounts for *** of total aircraft production using the same equipment during 2017-21. Boeing contends that “{i}n the unlikely event that the 737 MAX 7 manages to remain viable in

³ Boeing noted that double-aisle LCA are produced in a separate facility located in Everett, Washington. Conference transcript, p. 61 (Conner).

⁴ Airbus reported ***.

⁵ Airbus Americas *** during 2017-21.

the face of additional pressure from the C Series, {...there will be} reductions in production and shipments” as well as harm to Boeing’s overall operations and finances.⁶

Table III-7
100- to 150-seat LCA: Airbus’ and Boeing’s projected overall plant capacity and production of single-aisle LCA, 2017-21

* * * * *

Producers were asked about their ability to switch production between products. Boeing notes that ***.

Producers were also asked to describe the constraint(s) that set the limit(s) of their production capacity. Boeing explains that ***.

U.S. PRODUCERS’ U.S. SHIPMENTS AND EXPORTS

Historical shipments

Table III-8 and figure III-2 present historical U.S. shipments of U.S. producers during 2007-16. These data show that the number of Boeing’s U.S. shipments decreased from *** units to *** units from 2007 to 2013. As explained further below, U.S. shipments during 2014-16 consisted of ***.

Table III-8
100- to 150-seat LCA: Boeing’s historical U.S. shipments, 2007-16

* * * * *

Boeing explained the trend in its shipments from 2007 to 2013. ***.⁷

Figure III-2
100- to 150-seat LCA: Boeing’s historical U.S. shipments, 2007-16

* * * * *

⁶ Boeing’s postconference brief, pp. 48-49. Boeing also projected that U.S. airlines will require approximately *** new 100- to 150-seat LCA units delivered by 2028 in order to meet current fleet replacement needs. These orders will most likely be made within the next five years due to the lag times between orders and deliveries, which is typically several years. Boeing’s postconference brief, app. A, p. 3.

⁷ ***. Delta noted that Boeing could not offer Delta new aircraft in the 100- to 110-seat space that met its needs in the required timeframe, which is why it purchased the aircraft from Bombardier. Boeing, however, contends that it did not offer new 737-700 or 737 MAX 7 models because ***. Conference transcript, pp. 176-177 (May); Boeing’s postconference brief, p. 20, n.94.

Current shipments

Table III-9 presents Boeing's U.S. shipments, export shipments, and total shipments. Boeing's reported U.S. shipments all consisted of ***. Boeing also reported ***. This decrease in export shipments accounted for the decrease in Boeing's total shipments of *** percent from 2014 to 2016. The value of U.S. producers' total shipments also decreased by *** percent from 2014 to 2016. The average unit value of U.S. producers' total shipments fluctuated, however, increasing by *** percent from 2014 to 2015, but decreasing by *** percent from 2015 to 2016.⁸

Table III-9
100- to 150-seat LCA: Boeing's U.S. shipments, exports shipments, and total shipments, 2014-16

* * * * *

Export shipments accounted for *** of total shipments during 2014-16. Boeing explained that ***.⁹ In addition, Boeing noted that ***.¹⁰

Sales efforts

U.S. producers were asked to report on recent, current, and likely future 100- to 150-seat LCA sales efforts concerning U.S. customers during 2014-21. Boeing reported the following sales efforts:

- ***.
- ***.
- ***.
- ***.
- ***.
- ***.
- ***.
- ***.
- ***.

U.S producer's orders

The Commission received information regarding orders from one U.S. producer: Boeing. Airbus Americas reported *** orders for the subject aircraft during the period, and indicated that ***.

⁸ During 2007-16, Boeing's commercial shipments accounted for *** percent of total shipments.

⁹ ***.

¹⁰ Ibid.

Boeing contends that orders determine capacity and production in the aircraft manufacturing industry, as firms do not manufacture planes to create inventory.¹¹ Orders are also important to the development of a new line of aircraft, as they serve as a sign of product viability to potential customers, and because they are a source of advance payments that can partially fund the development of new aircraft. In particular, “winning orders during the design and development phase is generally necessary to prevent premature program termination.”¹² Boeing further explained that orders also enable firms to navigate learning curves relatively quickly during the production of new aircraft.¹³ Due to the limited number of major orders, Boeing contends that the loss of one order may have a negative impact on the firm’s commercial momentum.¹⁴

Order details

Boeing had orders for a total of nine 100- to 150-seat LCA units from January 2014 to April 2017. All of the identified customers for these aircraft are foreign entities: China Development Bank Financial Leasing Co. (three 737-700 model aircraft), Kunming Airlines (two 737-700 model aircraft), and Air Algerie (two 737-700C model aircraft). Unidentified customers ordered an additional two 737-700 model aircraft. Boeing also reports that it currently has unfilled orders for six 737-700 aircraft.¹⁵

Regarding its current U.S. orders for the subject aircraft, Boeing indicated that *** (table III-10). Boeing also reported *** orders of 100- to 150-seat LCA for delivery during 2017-18.¹⁶

Table III-10
100- to 150-seat LCA: U.S. producers' firm U.S. orders with future delivery dates, 2017-21

* * * * *

Order backlog

Boeing’s reported total backlog of orders for 100- to 150-seat LCA ranged from *** units on various dates between December 31, 2014 and December 31, 2016 (table III-11).¹⁷ Boeing also indicated that ***.¹⁸

¹¹ Conference transcript, pp. 21 (Novick), 118 (Anderson), and 119-120 (Conner).

¹² Ibid., pp. 36-37 (Nickelsburg).

¹³ Ibid., p. 92 (Anderson).

¹⁴ Ibid., p. 28 (Conner).

¹⁵ Boeing, “Orders & Deliveries,” database, <http://www.boeing.com/commercial/#/orders-deliveries> (accessed May 22, 2017).

¹⁶ Boeing’s data on its current orders ***. ***.

¹⁷ These total backlog amounts include ***. ***.

¹⁸ ***.

Table III-11
100- to 150-seat LCA: Boeing's end-of-period backlog, 2014-16

* * * * *

Order pricing

Based on the data provided by Boeing on its U.S. orders for 100- to 150-seat LCA aircraft, the price of an individual aircraft is approximately \$***. The price of Boeing's current unfulfilled orders for these aircraft includes a number of ancillary items, including ***.¹⁹

Boeing reported that ***.

Order delivery

Boeing reported that the average length of time between orders and deliveries is ***. Boeing ***.

Order risk and cancellation

Boeing reported that ***.

U.S. PRODUCER'S INVENTORIES

U.S. producers were asked to report end-of-period inventories. Boeing reported *** end-of-period inventories during 2014-16 ***.

U.S. PRODUCERS' IMPORTS AND PURCHASES

U.S. importer/purchaser Boeing Capital Corporation ("Boeing Capital") ***.²⁰ Since 2014, Boeing Capital purchased *** used/refurbished 100- to 150-seat LCA units from Boeing at a value of approximately \$*** per unit.

U.S. EMPLOYMENT, WAGES, AND PRODUCTIVITY

Boeing produces 100- to 150-seat LCA in Renton, Washington.²¹ Table III-12 shows Boeing's employment-related data during 2014-16. Boeing's employment measured by production and related workers ("PRW") decreased by *** percent from 2014 to 2015, but increased by *** percent from 2015 to 2016. Boeing's employment measured by PRWs

¹⁹ Ancillary items account for *** of the total cost of the company's future 737 MAX 7 orders (table III-9).

²⁰ ***.

²¹ Conference transcript, pp. 59-60 (Conner).

decreased by *** percent overall from 2014 to 2016.²² Boeing's total hours worked decreased by *** percent from 2014 to 2015, but increased by *** percent from 2015 to 2016. Boeing's total hours worked decreased overall by *** percent from 2014 to 2016. In addition, Boeing's hourly wages increased by *** percent from 2014 to 2016. Boeing noted that ***.

Furthermore, unit labor costs increased by *** percent from 2014 to 2016, and productivity decreased by *** percent from 2014 to 2016.

Table III-12

100- to 150-seat LCA: Average number of production and related workers, hours worked, wages paid to such employees, hourly wages, productivity, and unit labor costs, 2014-16

* * * * *

²² Boeing further noted that it cross-trains employees to maintain a learning curve, enabling them to work on various LCA models. Ibid., p. 149 (Conner).

PART IV: U.S. IMPORTS, APPARENT U.S. CONSUMPTION, AND MARKET SHARES

U.S. IMPORTERS

The Commission issued importer/purchaser questionnaires to 23 firms believed to be importers and/or purchasers of subject 100- to 150-seat LCA, as well as to U.S. producers of 100- to 150-seat LCA.¹ Usable questionnaire responses were received from nine companies, representing *** U.S. purchases and sales for importation from Canada and Europe between January 1, 2014 through March 31, 2017² under HTS subheading 8802.40.00.³ Table IV-1 lists all responding U.S. importers and U.S. purchasers of 100- to 150-seat LCA, their locations, and their shares of U.S. imports, in 2016.

Table IV-1
100- to 150-seat LCA: U.S. importers and U.S. purchasers by source, 2016

Firm	Headquarters	Share of imports and/or purchases by source (percent)				
		Boeing / United States	Bombardier / Canada	Airbus / European Union	All import sources	Total purchases and imports
American	Ft. Worth, TX	***	***	***	***	***
BBAM	San Francisco, CA	***	***	***	***	***
Boeing Capital	Renton, WA	***	***	***	***	***
Delta	Atlanta, GA	***	***	***	***	***
GECAS	Norwalk, CT	***	***	***	***	***
JetBlue	Long Island City, NY	***	***	***	***	***
Southwest	Dallas, TX	***	***	***	***	***
United	Chicago, IL	***	***	***	***	***
Virgin America	Burlingame, CA	***	***	***	***	***
Total		100.0	***	100.0	100.0	100.0

Note.--These data include imports/purchases of both new and used/refurbished aircraft.

Source: Compiled from data submitted in response to Commission questionnaires.

¹ The Commission issued questionnaires to those firms identified in the petition, along with firms that, based on a review of data provided by ***, may have accounted for more than one percent of total imports under HTS subheading 8802.40.00 since 2010.

² Although interim January to March 2016 and January to March 2017 data were not presented in Part III since there was no production of 100- to 150-seat LCA in 2017, interim period data are shown in this chapter to present data reported by U.S. importers/purchasers in 2017.

³ Since HTS subheading 8802.40.00 is a broad category for passenger aircraft that includes a substantial amount of out-of-scope items, import data presented in the report are based on data compiled from completed questionnaire responses.

American

American ***.⁴

Table IV-2

100- to 150-seat LCA: American’s business model, 2014-16, January to March 2016, and January to March 2017

* * * * *

BBAM

BBAM’s ***.⁵

Table IV-3

100- to 150-seat LCA: BBAM’s business model, 2014-16, January to March 2016, and January to March 2017

* * * * *

Boeing Capital

Boeing Capital ***.

Table IV-4

100- to 150-seat LCA: Boeing Capital’s business model, 2014-16, January to March 2016, and January to March 2017

* * * * *

Delta

Delta ***.

Delta further explained that it maintains a diverse aircraft fleet of various sizes from every major manufacturer to enable it to match its aircraft to its specific mission profile. Delta is also currently executing a fleet optimization strategy to reduce operating costs and improve product quality by shifting from small regional jets to increasingly larger mainline aircraft, including both subject 100- to 150-seat LCA and other single-aisle LCA, which are most cost-efficient on a per-seat basis.⁶ In addition, Delta noted that it looks at its “mission per seat cost,

⁴ American ***.

⁵ ***.

⁶ Delta’s postconference brief, pp. 18, 22.

revenue projections to evaluate the financial merit of any potential acquisition in combination with {its...} own experience in negotiating with suppliers.”⁷

Table IV-5
100- to 150-seat LCA: Delta’s business model, 2014-16, January to March 2016, and January to March 2017

* * * * *

GECAS

GECAS ***.
***⁸

Table IV-6
100- to 150-seat LCA: GECAS’ business model, 2014-16, January to March 2016, and January to March 2017

* * * * *

JetBlue

JetBlue ***.

Table IV-7
100- to 150-seat LCA: JetBlue’s business model, 2014-16, January to March 2016, and January to March 2017

* * * * *

Southwest

Southwest ***.

Table IV-8
100- to 150-seat LCA: Southwest’s business model, 2014-16, January to March 2016, and January to March 2017

* * * * *

⁷ Conference transcript, p. 179 (May).

⁸ GECAS explained that ***.***.

United

United ***.

Table IV-9

100- to 150-seat LCA: United's business model, 2014-16, January to March 2016, and January to March 2017

* * * * *

Virgin America

Virgin America, which merged with Alaska Air in 2016,⁹ ***.

Table IV-10

100- to 150-seat LCA: Virgin America's business model, 2014-16, January to March 2016, and January to March 2017

* * * * *

U.S. IMPORTS

Table IV-11 and figure IV-1 present data for U.S. imports and/or purchases of 100- to 150-seat LCA.¹⁰ These data show that ***,¹¹ while ***,¹² ***.

⁹ Alaska Air Group Closes Acquisition of Virgin America, Becomes the 5th Largest U.S. Airline, <https://newsroom.alaskaair.com/2016-12-14-Alaska-Air-Group-closes-acquisition-of-Virgin-America-becomes-the-5th-largest-U-S-airline>, December 14, 2016.

¹⁰ Import data refer to purchases of new aircraft from manufacturers other than Boeing.

¹¹ There is a discrepancy between the reported imports/purchases of *** from Airbus and information provided by Airbus regarding deliveries to the United States. Airbus reported delivering *** 100- to 150-seat LCA units during 2014-16, respectively. Airbus also provided backlog data of *** units in 2020 and *** units in 2021 based on future deliveries to U.S. customers. Staff believes that *** perceive deliveries to occur at a different stage of the transaction process than Airbus, causing this discrepancy. The total number of deliveries reported by Airbus since 2007 equals the total number of imports/purchases reported by *** combined during 2014-16.

¹² Boeing noted that purchasing a used airplane can be a more cost-effective solution for a customer if the airplane and refurbishment price prices are appropriate and it still has a long economic life, despite the fact that it may not have as advanced operating performance features and would require higher maintenance costs. Conference transcript, pp. 109, 111 (Conner, Anderson).

Boeing also explained that with the exception of Delta, airlines typically do not look to the used LCA market for their fleet replacement needs since used LCA are not available in sufficient quantities. They will purchase used/refurbished LCA to meet a need for additional capacity in a short timeframe. Delta, however, uses a strategy that involved purchasing used/refurbished LCA and maximizing its in-house

(continued...)

As a share of total quantity, *** of firms imported/purchased 100- to 150-seat LCA produced by Boeing, except during January to March 2016. As a share of total value, *** of firms imported/purchased 100- to 150-seat LCA produced by Airbus ***. Furthermore, the ratio of total U.S. imports/purchases to U.S. production increased by *** percentage points from 2014 to 2015, but decreased by *** percentage points from 2015 to 2016.

Table IV-11
100- to 150-seat LCA: U.S. imports and/or purchases, by source, 2014-16, January to March 2016, and January to March 2017

* * * * *

Figure IV-1
100- to 150-seat LCA: U.S. import quantities and average unit values (new aircraft), 2014-16, January to March 2016, and January to March 2017

* * * * *

NEGLIGENCE

The statute requires that an investigation be terminated without an injury determination if imports of the subject merchandise are found to be negligible.¹³ Negligible imports are generally defined in the Tariff Act of 1930, as amended, as imports from a country of merchandise corresponding to a domestic like product where such imports account for less than 3 percent of the volume of all such merchandise imported into the United States in the most recent 12-month period for which data are available that precedes the filing of the petition or the initiation of the investigation. However, if there are imports of such merchandise from a number of countries subject to investigations initiated on the same day that individually account for less than 3 percent of the total volume of the subject merchandise, and if the imports from those countries collectively account for more than 7 percent of the volume of all such merchandise imported into the United States during the applicable 12-month period, then imports from such countries are deemed not to be negligible.¹⁴ The statute also provides that, even if subject imports are found to be negligible for the purposes of present material injury, they shall not be treated as negligible for purposes of a threat analysis should the Commission determine that there is a potential that subject imports from the country concerned will imminently account for more than 3 percent of all such merchandise imported into the United

(...continued)

maintenance capabilities to extend the useful life of these LCA. Boeing’s postconference brief, app. A, pp. 17-18.

¹³ Sections 703(a)(1), 705(b)(1), 733(a)(1), and 735(b)(1) of the Act (19 U.S.C. §§ 1671b(a)(1), 1671d(b)(1), 1673b(a)(1), and 1673d(b)(1)).

¹⁴ Section 771 (24) of the Act (19 U.S.C § 1677(24)).

States.¹⁵ Imports from Canada accounted for zero percent of total imports of 100- to 150-seat LCA by quantity during 2016 and for the period April 2016 to March 2017. The petitioner, however, alleges that C Series imports from Canada will be 100 percent of all imports in 2018 and well above 50 percent in each subsequent year through 2021 based on the terms of Delta's order.¹⁶ Table IV-12 presents data regarding projected deliveries of Airbus and Bombardier.

Table IV-12
Projected 100- to 150-seat LCA deliveries of Airbus and Bombardier, 2017-21

* * * * *

APPARENT U.S. CONSUMPTION AND MARKET SHARES

Table IV-13 presents data on apparent U.S. consumption and U.S. market shares for new 100- to 150-seat LCA. These data show that consumption of 100- to 150-seat LCA consists of ***. Apparent U.S. consumption increased by *** from 2014 to 2015, but decreased by *** from 2015 to 2016. In addition, apparent U.S. consumption by quantity was *** during January to March 2016 as compared to *** during January to March 2017.

Table IV-13
100- to 150-seat LCA: Apparent U.S. consumption 2014-16, January to March 2016, and January to March 2017

* * * * *

Figure IV-2
100- to 150-seat LCA: Apparent U.S. consumption, 2014-16, January to March 2016, and January to March 2017

* * * * *

¹⁵ 19 U.S.C. § 1677(A)(iv).

¹⁶ Petition, p. 28; Boeing's postconference brief, p. 24.

PART V: PRICING DATA

FACTORS AFFECTING PRICES

The main “inputs” for the production of 100- to 150-seat LCAs are the components that are assembled into an aircraft. Once a purchase order is received, 100- to 150-seat LCA manufacturers work with various component suppliers to develop and produce parts for each aircraft. While some components are used across all 100- to 150-seat LCA, some components can be specifically developed and produced based on purchaser specifications. Overall, Boeing’s raw materials, as a percentage of total cost of goods sold, ranged from *** percent in 2014 to *** percent in 2015.¹

SALES AND PRICING PRACTICES

100- to 150-LCA prices

According to Boeing, subject and domestic 100- to 150-seat LCA are substitutable and ultimately compete for sales on price alone, and non-price factors are monetized and then valued by the customers and producers, and reflected in the final contract price.² Boeing also reported that demand for travel on routes served by 100- to 150-seat LCA is highly price sensitive, which in turn drives airline companies to aggressively seek competitive aircraft pricing.³

Respondents, however, contend that in addition to price airlines also consider other factors such as fuel burn rates and efficiency, the weight of the aircraft which can drive landing fees and other costs, and maintenance costs as well as factors such as range, passenger comfort, field performance, and noise levels.⁴ Respondents conclude that, “numerous ancillary terms, options, and performance guarantees would make it impossible to compare simple price data across contracts on a consistent, apples-to-apples basis.”⁵ In addition, Respondents state that similar to other products, significant purchases by a customer result in commercial or volume discounts.⁶

In addition to differences in pricing due to non-price factors, Respondents allege that there is a pattern of pricing for new aircraft that are entering into service for the first time. An airline that is among the first to accept the delivery of a new model knows that it faces risks of

¹ See *Part VI* for additional information on raw material costs.

² Conference transcript, p. 49 (Anderson). For example, after comparing the various ***. Boeing’s postconference brief, exh. ER-97.

³ Petition, p. 49.

⁴ Conference transcript, p. 165 (Mitchell).

⁵ Bombardier’s postconference brief, p. 30.

⁶ Conference transcript, p. 177 (May).

difficulties and delays given the complexity of aircraft production.⁷ According to Respondents, the “launch price” or “marquee deal” can be anywhere from 20 to 30 percent lower than the price of subsequent sales.⁸ Delta adds that “one widely recognized and consistent feature {of this industry} is that launch or marquee customers receive favorable pricing that reflect their status and the risk associated with adopting new aircraft.”⁹ Consequently, in their view, because the launch price is generally recognized by the industry as compensation for additional risk and the evaluation of a new aircraft, the launch price does not set a price ceiling (or create a “lighthouse effect”) for subsequent sales.¹⁰ In situations where an aircraft is “unproven,” smaller airlines give “significant” weight to larger airlines when considering placing an order for a new aircraft type.¹¹ Respondents add that after an aircraft obtains certification, a steady delivery stream is established, and in-service disruptions diminish, the risks associated with purchasing the aircraft decline and prices tend to rise.¹²

Contracts, sales terms, and discounts

According to Petitioner, the key purchase items (see below) are set at the time of order and formalized in contractually binding obligations. Order contracts include initial deposits at time of order, and significant pre-delivery installment payments that support the cash flow needed to sustain production operations.¹³

Both Boeing and Bombardier reported that their sales contracts contain ***. Boeing indicated that it had ***. For its U.S. orders, Bombardier described the ***.

Boeing described its pre-delivery payment as ***. Bombardier described its pre-delivery schedule as ***.¹⁴

Bidding process

Because of the limited number of global producers and high concentration of purchasers, responding firms described various 100- to 150-seat LCA solicitation and purchase processes ranging from formal request for proposals (“RFP”) and bids, to informal discussions or direct negotiations with one or more suppliers, to single sourcing of aircraft. Boeing described the process as primarily centered on the bid process.

According to Boeing, aircraft sales are generally ***. Although sales campaigns vary in terms of the formality of the process, ***. Boeing adds that ***.

⁷ Ibid., p. 165 (Mitchell).

⁸ Ibid., p. 238 (May).

⁹ Delta’s postconference brief, p. 28.

¹⁰ Ibid., pp. 177, 178 (May).

¹¹ Delta’s postconference brief, p. 31.

¹² Ibid., p. 166 (Mitchell).

¹³ Petition, pp. 2, 47.

¹⁴ Regarding engine pricing, Boeing indicated that the “***.” Bombardier indicated that the “***.”

Bombardier reported that its sales are conducted through a ***.¹⁵ Bombardier stated that ***.

Importer/purchasers described a variety of purchase methods, driven by individual fleet needs and purchase preferences. *** reported that it typically engages in a bidding process (but for additional aircraft purchases for the existing 737 fleet, it will ***; whereas *** indicated that it generally does not issue an RFP, preferring to work with identified manufacturers when there is an identified need. *** negotiate and enter into agreements directly with Boeing (***) and Airbus (***). *** negotiates directly with manufacturers for new aircraft, but solicits bids for used aircraft. *** reported that it uses no single standard method, elaborating that its most recent purchase was through an RFP and the prior purchase was through direct negotiations.

*** and all but one responding importer/purchaser indicated that bids are typically closed and that competitors have general common knowledge regarding other bids. In general, responding firms indicated that manufacturers are made aware of the other firms competing for the sale and may receive general indications about their standing, value proposition, relative price levels, and relative competitiveness, but will not provide specific details or pricing to competing manufacturing companies. *** indicated that it had chosen not to bid for sales of 100- to 150-seat LCA. *** reported that it had not been excluded from any bidding on 100- to 150-seat LCA. *** indicated that it had been excluded from bidding for 100- to 150-seat LCA on ***.¹⁶

U.S. importers/purchasers indicated that they consider a number of factors during the bid process, including price and non-price factors. Identified factors include various economic and technical factors such as purchase price, overall operating cost, seat cost efficiency, availability/delivery timing, performance, warranties, and finance terms. *** identified fleet commonality as a bid factor consideration.

In terms of frequency of solicitation and years of deliveries covered by purchases, importers/purchasers generally did not report specific approaches or requirements. Most indicated that they purchase infrequently, having no specific pattern, or as needed, and that overall purchase timing and delivery schedule depends on fleet plan, size of order, and aircraft needs. Information on responding firms' two most recent purchases supported the variety across purchasers of timing and frequency of 100- to 150-seat LCA purchases.

The criteria necessary to enter the bidding process include capital, program experience, a skilled workforce, and regulatory approval. Firms compete for contracts based on both cost and non-cost factors. The cost factors include production efficiency, labor, capital, and economies of scale and learning effects; the main non-cost factors are core competencies, on-time delivery, and flexible production capacity.¹⁷ Economies of scale are derived through lengthy production runs that allow a manufacturer of 100- to 150-seat LCA to spread and

¹⁵ Bombardier added that the term "bid" is ***.

¹⁶ See "Lost Sales and Lost Revenue" section below for more information.

¹⁷ USITC, *Competitive Assessment of the U.S. Large Civil Aircraft Aerostructures Industry, Inv. No. 332-414*, USITC Publication 3433, p. 2-1.

reduce direct and indirect development and production costs over more units. Increasing production runs also provide a learning effect that can reduce per-unit production costs.¹⁸ In addition, the ability to meet delivery schedules is important. Not meeting the promised delivery date to an airline may negatively affect the terms of present and future contracts.¹⁹

Lighthouse effect and commercial momentum

Aircraft pricing is set at the time of the order and affects both the specific sales transaction, and according to Petitioner, future sales transactions. Boeing argues that price feedback from purchasers creates a mechanism by which purchasers expect comparably low prices for future sales, also called the “lighthouse effect.” The effect is not limited to new orders or a formal sales campaign, but may also be made by existing customers for incremental product deliveries.²⁰ According to Boeing, *** Boeing identified the main drivers of price discovery as the relatively small number of sophisticated customers, highly publicized sales campaigns that occur infrequently, and information sources such as securities, filings, lease company offers, and financial packages.²¹

Bombardier, however, states that, “***, noting that if Boeing were correct, one would expect to see additional C Series orders in the U.S. market, but none have occurred in the 13 months since the Delta purchase.²² Delta adds that one of the characteristics of the aircraft industry is the high degree of price opacity, which limits the ability of price transmission in this industry.²³

Three importers/purchasers provided substantive responses that identified additional airline-specific factors beyond prior market price performance. *** noted that it has a bias toward aircraft types that are already in its fleet to minimize fleet complexity costs. *** responded that although smaller airlines might prefer to acquire additional similar models to

¹⁸ “Learning costs” are economies of scale associated with “learning by doing” and refers to how a manufacturer can reduce production costs through actual production experience. There are two types of learning-related effects: first, where productivity is increased by experience gained in the long-term production of a product; and second, working with a customer and learning the processes and procedures specific to that customer, which can also benefit in obtaining future contracts. USITC, *Competitive Assessment of the U.S. Large Civil Aircraft Aerostructures Industry, Inv. No. 332-414*, USITC Publication 3433, pp. xv, 2-13.

¹⁹ In addition, “Airlines report that the inability to take delivery of aircraft in a timely manner can result in significant forgone profits, which depending on their magnitude, can force an airline to purchase from another producer.” USITC, *Competitive Assessment of the U.S. Large Civil Aircraft Aerostructures Industry, Inv. No. 332-414*, USITC Publication 3433, p. 2-14 and footnote 38.

²⁰ Petition, pp. 19, 49.

²¹ Conference transcript, p. 37 (Nickelsburg). Boeing identified three reasons Republic Airways’ C Series purchase did not have the same effect: price, significantly lower volumes, and Republic is not a “market leader.” Boeing’s postconference brief, app. 22-3.

²² Bombardier’s postconference brief, p. 28.

²³ Delta’s postconference brief, pp. 28-29.

generate cost efficiencies from fleet commonality, prior aircraft purchases are not a factor for *** because “***.” Finally, *** noted that existing purchase contract options would likely lead to more purchases.

According to Boeing, the industry is characterized by “commercial momentum” or a potential for virtuous and vicious cycles, or positive and negative feedback cycles. They state that customers are far more likely to place follow-on orders for the same 100- to 150-seat LCA than to order another producer’s competing product. In addition, other customers are more likely to purchase from a producer who is experiencing positive commercial momentum, especially if the momentum is driven by orders from large, well-respected airlines. This is driven by both mimicking and by the economic advantages of market acceptance, including higher residual value, easier financing, superior lifetime support costs, and a reduced likelihood of early production termination. Consequently, sales lead to more sales and lost sales lead to more lost sales.²⁴ In addition, positive commercial momentum affects production efficiency by increasing the rate at which the producer moves down the learning curve, lowering its marginal cost, and facilitates access to economies of scale effects through volume discounts on input purchases.²⁵ Boeing asserts that “***.” Bombardier, however, states that “***.” Of the three importers/purchasers that provided substantive responses, *** indicated that recent market sales performance has “***.” Similarly, *** responded that prior market sales did not impact sales performance at all, and that, to the contrary, “***.”²⁶ Finally, *** responded that prior market sales performance had “little or no impact” on its purchasing decisions.

Questionnaire bid data

U.S. and foreign producers were asked to provide bid data for bids since January 1, 2014. For each bid/sales campaign, they were requested to provide the following information: for initial and final offers—customer, offer date, offer model(s), aircraft specifications, firm order units offered, included engine price, ancillary items per aircraft, delivery terms, payment terms, and offer acceptance, as well as a description of factors driving changes in initial versus final offers.²⁷ Boeing provided bid data for *** individual sales campaigns, *** (table V-1a). Bombardier provided bid data for *** individual sales campaigns involving *** (table V-1b). Selected bid information is presented chronologically in table V-2. Of the seven bid events, only

²⁴ Petition, pp. 17, 18, 51.

²⁵ Petition, p. 52. In addition, Petitioner states that orders are critical to both the particular transaction and the manufacturer’s viability because order contracts ordinarily provide for an initial deposit and pre-delivery payments. These payments are “critical” for cash flow and program development. Petition, p. 18.

²⁶ Delta adds that it is not familiar with any industry-recognized concept of “commercial momentum.” Delta’s postconference brief, p. 31.

²⁷ Therefore, in general, care should be taken in comparing competing bid prices since physical differences in the products of competing firms, changes in purchaser specifications and inclusions during the bid process and non-price factors all affect price comparability.

one had an accepted initial offer—***. *** of the *** Boeing ***. All ***. None of Boeing’s bids showed a change ***.

Table V-1a

100- to 150-seat LCA: Boeing’s bids since January 1, 2014, by customer, by model

* * * * *

Table V-1b

100- to 150-seat LCA: Bombardier’s bids since January 1, 2014, by customer, by model

* * * * *

Table V-2

100- to 150-seat LCA: Boeing’s and Bombardier’s bid events since January 1, 2014, by date

* * * * *

In part because of the sporadic and limited number of bids of 100- to 150-seat LCA during 2014-16, few firms provided information on trends in bid prices. For example, *** noted that it could not respond to the question since it has not entered a purchase agreement for 100- to 150-seat LCA in “****” and *** most recent transaction was in 2011.

Boeing indicated that it has ***. Bombardier indicated, however, that ***. ***, the only importer/purchaser that provided a detailed response, indicated that it has experienced a downward trend in price offerings that has been driven by ***.

LOST SALES AND LOST REVENUE

The Commission requested that the U.S. producer of 100- to 150-seat LCA report purchasers where they experienced instances of lost sales or revenue due to competition from imports of 100- to 150-seat LCA from Canada during 2014-16. Boeing reported that it ***.²⁸

Boeing made one lost revenue allegation. The lost revenue allegation involved a sales campaign at United. According to Boeing, although it eventually succeeded in getting the contract for 65 100- to 150-seat LCAs, the reduced price would have resulted in a *** had the contract been fulfilled.²⁹ In responding to whether U.S. producers had reduced prices to compete with imports, ***. “****”

Boeing made one lost sales allegation. The lost sales allegation involved a sales campaign at Delta. According to Boeing, ***. According to Boeing, Bombardier offered a price of \$19.6 million per-100- to 150-seat LCA, which it alleges is significantly below the cost of

²⁸ Since it did not produce subject product in the United States, ***.

²⁹ United later converted the orders to orders for larger Boeing models with deferred delivery dates. Petition, p. 14.

production (\$33.2 million) and below the price it charged Air Canada (\$30 million). The lost sales allegation involved 75 100- to 150-seat LCAs with an option for 50 more planes.³⁰

According to Delta representatives, “Boeing is not competing for new orders when we were negotiating with Bombardier. Boeing had no viable competitive alternatives to the CS100. We were not even considering any new Boeing product as an alternative when we made the purchase that Boeing challenges in the petition. Boeing offered us used E190s and Embraer Brazilian E190s, which we purchased and subsequently resold. At no time did Boeing even try to convince us to consider the 737 and 700. It would be wrong to suggest that Boeing lost sales to Delta because we purchased the CS100. Boeing simply was not in the mix. They did not have a plane that satisfied our mission profile and needs.”³¹ In addition, Delta stated that “Boeing also had made it clear during this time frame they had no slot availability in 2018 and 2019 to deliver aircraft in that critical time for us.”³²

In clarifying questionnaire responses, Delta also stated that ***.”³³

Of the eight responding importers/purchasers, *** indicated that they had not purchased Canadian-produced 100- to 150-seat LCA instead of U.S.-produced 100- to 150-seat LCA since January 1, 2014. Of the seven responding importers/purchasers, three responded that U.S. producers had not reduced prices in order to compete with lower-priced imports, and four indicated that they did not know.

³⁰ Petition, pp. 15-16.

³¹ Conference transcript, p. 182-183 (May).

³² Conference transcript, p. 220-221 (May). According to Delta, Boeing’s backlog meant that Delta would not be able to acquire “any significant number” of aircraft before 2020. Delta’s postconference brief, p. 26. Delta adds that, as part of the offer from Boeing, ***.” Delta’s postconference brief, pp. 26, 34, and exh. 18.

³³ ***.

PART VI: FINANCIAL EXPERIENCE OF U.S. PRODUCERS

BACKGROUND

Boeing, the sole U.S. producer, provided usable financial data. The firm has a fiscal year-end of December 31 and reported on the basis of U.S. GAAP.¹ Boeing overall is a multibillion dollar firm that operates through five segments producing and selling a wide range of commercial aircraft, military manned and unmanned aircraft and weapons systems, networks and space systems, global services and support services, and offers operating leases, finance leases, and assets held for sale or re-lease through a finance segment.²

The Boeing model 737 series is a short- to medium-range twinjet narrow-body airliner that first went into service in 1968. Boeing announced the 737 Next Generation series in 1993, which consisted of the 737-600, -700, -800, and -900 models and involved a change in the airframe, interior, and engines but retained important commonality with previous 737 models, (the “Classic 737”). The 737 Next Generation featured increased wing span, increased fuel capacity, and then-new and quieter, more fuel efficient CFM56-7B engines leading to a 900 nautical mile increase in range and permitting transcontinental service. The first 737-700 model flew in February 1997.³ The first delivery was to Southwest Airlines in December 1997 and Southwest Airlines remains that model’s primary user.

Boeing announced the 737 MAX program in 2011 with three variants, 737 MAX 7, 737 MAX 8, and 737 MAX 9. The 737 MAX is considered to be the fourth generation of the 737 family, with the primary change being the use of more efficient CFM International LEAP-1B engines, split-tip winglets, and modifications to the airframe. Although the 737 MAX 7 is based on the 737-700 (one of three variants of the 737 Next Generation family), the 737 MAX 7 reportedly is a design derived from the MAX 8 (which test flew in January 2016 and obtained FAA certification on March 9, 2017). It has improved aerodynamics and advertises 14 percent lower fuel burn compared with the 737 next generation; also the model uses the 737 MAX 8 wing and landing gear, structural re-gauging and strengthening, and systems and interior

¹ Boeing recognizes sales of commercial airplanes as each unit is completed and accepted by the customer. Sales recognized represent the price negotiated with the customer, adjusted by an escalation formula as specified in the contract. Boeing reported no sales during the first quarter of either 2016 or 2017 (interim periods). Hence, tables in this section do not present interim period data.

² Boeing 2016 Form 10-K, pp. 1-2. The commercial aircraft segment accounted for approximately 69 percent of Boeing’s total sales revenues of \$94.6 billion, and 54 percent of the firm’s earnings from operations in 2016. Calculated from Boeing’s 2016 Form 10-K, pp. 17 and 20.

³ Deliveries of all 737 models reached a cumulative total of 6,203 planes in 2016, up 490 planes from 2015, which was an increase of 495 planes over the cumulative total of 5,218 planes delivered as of end-2014. Boeing delivered a total of 748 planes in 2016, including models within the 737, 747, 767, 777, and 787 series. Boeing 2016 Form 10-K, p. 27.

modifications to accommodate a longer length (46 inches longer in the aft fuselage and 30 inches longer forward fuselage).⁴ The 737 MAX 7 is scheduled to enter service in 2019.

OPERATIONS ON 100- TO 150-SEAT LCA

Table VI-1 presents data on Boeing’s operations in relation to 100- to 150-seat large civil aircraft during 2014-16. The sales represent units that were delivered and accepted by the customer. Boeing reported ***.

Table VI-1
100- to 150-seat LCA: Results of operations of Boeing, 2014-16

* * * * *

Total net sales

According to the trade press, since launch there have been a total of 1,162 orders for the 737-700 (including the models 737-700, -700C, and -700W) with six orders outstanding as of August 2016.⁵ As may be seen from the data in table VI-1, Boeing reported the deliveries of a ***.

Table VI-2 shows the results of operations of Boeing from 2007 to 2016. These data include ***.

Table VI-2
100- to 150-seat LCA: Selected results of operations of Boeing, 2007-16

* * * * *

Data from table VI-2 for the average unit value and average unit value of operating income per aircraft are shown graphically in figure VI-1.

Figure VI-1
100- to 150-seat LCA: Selected results of operations of Boeing, 2007-16

* * * * *

⁴ “Boeing 737 MAX,” Wikipedia citing “Farnborough: Boeing’s Execution on 737 MAX Sparkles as MAX 7.5 and MAX 10X Loom,” Airways Magazine, July 10, 2016 and “Boeing confirms 737 MAX 7 redesign,” flight Global, July 11, 2016. Found at https://en.wikipedia.org/wiki/Boeing_737_Max, retrieved on May 10, 2017.

⁵ World Airliner Census 2016. Found at pic.carnoc.com/vedio/2016/2016fleetreport.pdf retrieved May 22, 2017.

Operating costs and expenses

In its questionnaire response, Boeing provided cost data ***.⁶ Comparing the data in table VI-1 with the same cost data prepared on program accounting basis indicates that ***.⁷

As can be seen from the data in table VI-1, ***. The category of raw materials, ***. The two cost categories of direct labor and other factory costs, which are described in the notes to table VI-1, ***. SG&A expenses also declined from 2014 to 2016, ***.

Profitability

With the ***, gross profit declined *** from 2014 to 2016. With the ***, operating income likewise declined *** from 2014 to 2016. Net income before taxes and cash flow (the sum of net income and depreciation charges) followed the same trends as operating income.

Variance analysis

A variance analysis for the operations of Boeing with respect to 100- to 150-seat LCA is presented in table VI-3.⁸ The information for this variance analysis is derived from table VI-1. A variance analysis is a method to assess the changes in profitability from period to period by measuring the impact of changes in the relationships between price, cost, and volume. A

⁶ Boeing's U.S. producer questionnaire response, sections III-9b and III-3. ***. As noted in Boeing's financial reporting, "the accounting quantity is our estimate of the quantity of airplanes that will be produced for delivery under existing and anticipated contracts. The determination of the accounting quantity is limited by the ability to make reasonably dependable estimates of the revenue and cost of existing and anticipated contracts. The accounting quantity for each program may include units that have been delivered, undelivered units under contract, and units anticipated to be under contract in the reasonable future (anticipated orders). In developing total program estimates, all of these items within the accounting quantity must be considered." Program accounting is further explained in Boeing 2016 Form 10-K, pp. 45 and 57 (as filed). Boeing's estimate of the 737 program accounting quantities were 9,000 planes in 2016, up from the 2015 estimate of 8,400 planes, which was an increase of 600 planes over the 2014 estimate of 7,800 planes. Boeing's 2016 Form 10-K, pp. 27-28 (as filed).

⁷ See "Boeing data breakouts 5-16-2017" (data for question III-9a presented by unit costs and program accounting methods) and "Correspondence Boeing 5-16-2017" ***.

⁸ The Commission's variance analysis is calculated in three parts: Sales variance, cost of sales variance (COGS variance), and SG&A expense variance. Each part consists of a price variance (in the case of the sales variance) or a cost or expense variance (in the case of the COGS and SG&A expense variance), and a volume variance. The sales or cost/expense variance is calculated as the change in unit price or per-unit cost/expense times the new volume, while the volume variance is calculated as the change in volume times the old unit price or per-unit cost/expense. Summarized at the bottom of the table, the price variance is from sales; the cost/expense variance is the sum of those items from COGS and SG&A variances, respectively, and the volume variance is the sum of the volume components of the net sales, COGS, and SG&A expense variances. Here, the volume variance is more important than is usually the case.

calculation is made of the impact of each factor by varying only that factor while holding all other factors constant. The components of net sales variances are either favorable (positive), resulting in an increase in net sales and profitability or unfavorable (negative), resulting in the opposite. As the data depict the unfavorable volume variance (lower number of units delivered) and unfavorable cost/expense variance (unit costs/expenses rose) led to lower operating and net income. These unfavorable variances outweighed a favorable price variance.

Table VI-3
100- to 150-seat LCA: Variance analysis on the operations of Boeing, 2014-16

* * * * *

CAPITAL EXPENDITURES AND RESEARCH AND DEVELOPMENT EXPENSES

In accounting terms, capital expenditures increase the value of specific plant and equipment and total assets, while charges for depreciation and amortization (in the case of intangible assets), impairments, and divestitures (or retirement or abandonment of property) decrease the value of assets. Capital expenditures and research and development (“R&D”) expenses are incurred to achieve improvements in equipment and the quality of products produced or reduce operating costs.

Boeing stated that R&D expenses consist of ***.⁹ As previously noted, R&D expenses ***.

Table VI-4 presents capital expenditures and R&D expenses as reported by Boeing.¹⁰ The data are presented separately for the 737-700 and 737 MAX 7 models.

Table VI-4
100- to 150-seat LCA: Capital expenditures and R&D expenses of Boeing, 2014-16

* * * * *

ASSETS AND RETURN ON ASSETS

Table VI-5 presents data on Boeing’s total assets and its return on assets (“ROA”) (calculated as the ratio of operating income to total assets).

Table VI-5
100- to 150-seat LCA: Boeing’s total assets and return on assets, 2014-16

* * * * *

⁹ ***.

¹⁰ Airbus Americas operates a facility in Mobile, Alabama for the production of the Airbus A321 and A320 models. The firm reported capital expenditures of ***.

Boeing stated that total assets are ***.¹¹ Boeing provided data on total assets from 2007-16, which indicated a steady decrease until 2010, an increase in 2011 a steady decrease until 2015 and an increase in 2016. Boeing also provided data on deferred production costs (not shown in table VI-5), which were negative in 2007, positive in 2008-2011, and negative thereafter. Negative production costs reflect timing recognition differences between COGS as calculated using program accounting and actual incurred expenditures for deliveries (actual costs were ***.¹²

CAPITAL AND INVESTMENT

The Commission requested the U.S. producer of 100- to 150-seat LCA to describe any actual or potential negative effects of imports of 100- to 150-seat large civil aircraft from Canada on the firm’s growth, investment, ability to raise capital, development and production efforts, or the scale of capital investments. Table VI-6 presents Boeing’s responses.

Table VI-6
100- to 150-seat LCA: Negative effects of imports from Canada on investment, growth, and development since January 1, 2014 and anticipated negative effects of imports from Canada

* * * * * * *

Table VI-7 presents Boeing’s narrative responses on actual negative effects on growth and development and anticipated effects of imports.

Table VI-7
100- to 150-seat LCA: Boeing’s narrative responses on actual and anticipated negative effects on growth, and development and anticipated effects of imports since January 1, 2014

* * * * * * *

¹¹ ***.
¹² ***.

PART VII: THREAT CONSIDERATIONS AND INFORMATION ON NONSUBJECT COUNTRIES

Section 771(7)(F)(i) of the Act (19 U.S.C. § 1677(7)(F)(i)) provides that—

In determining whether an industry in the United States is threatened with material injury by reason of imports (or sales for importation) of the subject merchandise, the Commission shall consider, among other relevant economic factors¹--

- (I) if a countervailable subsidy is involved, such information as may be presented to it by the administering authority as to the nature of the subsidy (particularly as to whether the countervailable subsidy is a subsidy described in Article 3 or 6.1 of the Subsidies Agreement), and whether imports of the subject merchandise are likely to increase,*
- (II) any existing unused production capacity or imminent, substantial increase in production capacity in the exporting country indicating the likelihood of substantially increased imports of the subject merchandise into the United States, taking into account the availability of other export markets to absorb any additional exports,*
- (III) a significant rate of increase of the volume or market penetration of imports of the subject merchandise indicating the likelihood of substantially increased imports,*
- (IV) whether imports of the subject merchandise are entering at prices that are likely to have a significant depressing or suppressing effect on domestic prices, and are likely to increase demand for further imports,*
- (V) inventories of the subject merchandise,*

¹ Section 771(7)(F)(ii) of the Act (19 U.S.C. § 1677(7)(F)(ii)) provides that “The Commission shall consider {these factors} . . . as a whole in making a determination of whether further dumped or subsidized imports are imminent and whether material injury by reason of imports would occur unless an order is issued or a suspension agreement is accepted under this title. The presence or absence of any factor which the Commission is required to consider . . . shall not necessarily give decisive guidance with respect to the determination. Such a determination may not be made on the basis of mere conjecture or supposition.”

- (VI) *the potential for product-shifting if production facilities in the foreign country, which can be used to produce the subject merchandise, are currently being used to produce other products,*
- (VII) *in any investigation under this title which involves imports of both a raw agricultural product (within the meaning of paragraph (4)(E)(iv)) and any product processed from such raw agricultural product, the likelihood that there will be increased imports, by reason of product shifting, if there is an affirmative determination by the Commission under section 705(b)(1) or 735(b)(1) with respect to either the raw agricultural product or the processed agricultural product (but not both),*
- (VIII) *the actual and potential negative effects on the existing development and production efforts of the domestic industry, including efforts to develop a derivative or more advanced version of the domestic like product, and*
- (IX) *any other demonstrable adverse trends that indicate the probability that there is likely to be material injury by reason of imports (or sale for importation) of the subject merchandise (whether or not it is actually being imported at the time).²*

Information on the nature of the alleged subsidies was presented earlier in this report; information on the volume and pricing of imports of the subject merchandise is presented in *Parts IV and V*; and information on the effects of imports of the subject merchandise on U.S. producers' existing development and production efforts is presented in *Part VI*. Information on inventories of the subject merchandise; foreign producers' operations, including the potential for "product-shifting;" any other threat indicators, if applicable; and any dumping in third-country markets, follows. Also presented in this section of the report is information obtained for consideration by the Commission on nonsubject countries.

² Section 771(7)(F)(iii) of the Act (19 U.S.C. § 1677(7)(F)(iii)) further provides that, in antidumping investigations, ". . . the Commission shall consider whether dumping in the markets of foreign countries (as evidenced by dumping findings or antidumping remedies in other WTO member markets against the same class or kind of merchandise manufactured or exported by the same party as under investigation) suggests a threat of material injury to the domestic industry."

THE INDUSTRY IN CANADA

Overview

The Commission issued foreign producers' or exporters' questionnaires to one firm, Bombardier, believed to produce and/or export 100- to 150-seat LCA from Canada. Bombardier submitted a useable response to the Commission's questionnaire. This firm's exports to the United States account for *** U.S. purchases and sales for future importation of 100- to 150-seat LCA from Canada. According to Bombardier's estimates, the production of 100- to 150-seat LCA in Canada reported in this section of the report accounts for *** production of 100- to 150-seat LCA in Canada. Table VII-1 summarizes Bombardier's 100- to 150-seat LCA operations in Canada.

Table VII-1
100- to 150-seat LCA: Summary data for producer in Canada, 2016

Firm	Production (units)	Share of reported production (percent)	Exports to the United States (units)	Share of reported exports to the United States (percent)	Total shipments (units)	Share of firm's total shipments exported to the United States (percent)
Bombardier	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Changes in operations

As presented in table VII-2, Bombardier reported several operational and organizational changes since January 1, 2014.

Table VII-2
100- to 150-seat LCA: Bombardier's reported changes in operations, since January 1, 2014

* * * * * * *

Operations on 100- to 150-seat LCA

Table VII-3 presents information on the 100- to 150-seat LCA operations of Bombardier. These data show that Bombardier ***. Bombardier explained that ***. In addition, Bombardier ***. Bombardier also noted that it is not possible to switch production from its C Series aircraft

to its CRJ family of regional jets since they are manufactured on different production lines that have different tooling and manufacturing processes.³

Table VII-3

100- to 150-seat LCA: Data on industry in Canada, 2014-16, January to March 2016, and January to March 2017

* * * * *

Onerous contract provision

Bombardier⁴ recognized a loss of \$516 million in 2016 under the “onerous contracts provision” under International Financial Reporting Standards (“IFRS”). In the firm’s annual report it stated that this loss was recognized on the closing of firm aircraft orders in its C series aircraft program during the second quarter of 2016.⁵ As Bombardier explains in its annual financial statements, “an onerous contract provision is recorded if it is more likely than not that the unavoidable costs of meeting the obligations under a firm contract, exceed the economic benefits expected to be received under the contract.”^{6 7} The amount of \$486 million (net of the balance that was included in corporate and eliminations) was included in cost of sales in 2016, leading to a net loss after special items but before interest and taxes of \$903 million for the commercial aircraft segment of Bombardier.

³ Conference transcript, p. 198 (Mullot).

⁴ Bombardier Inc. is a company organized under the laws of Canada. Its accounting statements are reported under IFRS. The amounts in Bombardier’s annual report are expressed in U.S. dollars.

⁵ Bombardier Inc. Financial Report, Fiscal Year Ended December 31, 2016 (“Bombardier 2016 Financial Report”), pp. 8, 57, 66, and 70. In a table (page 70) showing orders by customer in 2016, in the second quarter of 2016, Delta Airlines is shown as a buyer of 75 CS100 with options for 50 CS100; Air Canada and Air Baltic are shown as buyers of 45 CS300 (options for an additional 30 CS300) and 7 CS300, respectively. Testimony at the staff conference focused on Delta’s purchase from Bombardier.

⁶ Bombardier 2016 Financial Report, p. 123. In other words, if a contract review indicates a negative gross margin, the entire expected loss on the contract is recognized in cost of sales in the period in which the negative gross margin is identified. The note also states that “unavoidable costs exclude the allocation of certain indirect overheads which are included in the cost of inventories, such as amortization. As early production units in a new aircraft program require higher costs than units produced later in the program, cost estimates also depend on expected delivery schedules. The estimates are reviewed on a quarterly basis.”

⁷ IFRS and U.S. Generally Accepted Accounting Principles are similar in many respects. The Financial Accounting Standards Board (FASB) decided in 2014 to exclude specific guidance for onerous contracts and to retain the existing guidance on the provision for loss contracts in the revenue recognition principles for construction type and production type contracts. It should be pointed out that the onerous contract provision and related revenue recognition are not the same as program accounting.

Projected operations on 100- to 150-seat LCA

As shown in table VII-4, Bombardier ***. Bombardier explained that ***. Bombardier also noted that a rapid ramp-up in deliveries would not be possible in the foreseeable future because it is still working its way along a production learning curve.⁸

The data reported in table VII-4 ***.

Table VII-4
100- to 150-seat LCA: Projected data on industry in Canada, 2017-21

* * * * *

Canadian producer's orders

The Commission received information on orders from one U.S. producer: Bombardier. Bombardier provided information on its orders of two in-scope 100- to 150-seat LCA: the CS100 model and the CS300 model.

Order details

Bombardier had orders for a total of 360 in-scope aircraft as of March 31, 2017: 123 CS100 units and 237 CS300 units. Delta accounted for the largest share of these orders, with an order for 75 CS100 units. Other entities with relatively large orders for the subject aircraft included Air Canada (with an order for 45 CS300 units) as well as Macquarie AirFinance and Republic⁹ (both with orders for 40 CS300 units). Bombardier reported that ***.¹⁰

Table VII-5 presents data regarding future U.S. orders for 100- to 150-seat LCA. Bombardier reported that ***.

Table VII-5:
100- to 150-seat LCA: Canadian producer's firm U.S. orders with future delivery dates, 2017-21

* * * * *

⁸ Conference transcript, p. 188 (Aranoff).

⁹ Republic is currently in bankruptcy and it is unclear whether these orders will ever be delivered. In October 2016, Republic and Bombardier reached a settlement providing deferral of all C Series deliveries to Republic. Petition, p. 28, n. 86, p. 67.

¹⁰ Bombardier, "Orders & Deliveries," March 31, 2017: Program Status Report - C Series aircraft," <http://www.bombardier.com/content/dam/Websites/bombardiercom/supporting-documents/BA/Bombardier-Aerospace-20170331-CSeries-Program-Status-en.pdf>.

Order backlog

Bombardier reported a total backlog of orders for the subject aircraft that ranged from *** units on various dates between December 31, 2014 and March 31, 2017 (table VII-6). Bombardier also reported that this backlog reflects ***.¹¹

Table VII-6
100- to 150-seat LCA: Canadian producer's end-of-period backlog, 2014-16

* * * * *

Order pricing

Bombardier reported the total price of individual CS100 units to be approximately \$***, while the total price of individual CS300 units is approximately \$***. The prices of Bombardier's future orders for 100- to 150-seat LCA include ***. Ancillary items account for *** (table VII-5). Bombardier also indicated that ***.

Order delivery

Bombardier reported that the average length of time between orders and deliveries is ***. Bombardier ***.

Order risk and cancellation

Bombardier indicated in its questionnaire response that ***.

Exports

According to GTA, the leading export markets for aircraft greater than 15,000 kgs, which include out-of-scope aircraft such as military aircraft, cargo aircraft, and used passenger aircraft, from Canada are the United States, China, Malta, and Spain (table VII-7). During 2016, the United States was the top export market for aircraft greater than 15,000 kgs from Canada, accounting for 38.3 percent, followed by China, Malta, and Spain, all accounting for 8.4 percent, respectively.

¹¹ ***.

Table VII-7
Aircraft greater than 15,000 kgs: Exports from Canada by destination market, 2014-16

Destination market	Calendar year		
	2014	2015	2016
Quantity (units)			
Exports from Canada to the United States	97	86	41
Exports from Canada to other major destination markets.--			
China	11	10	9
Malta	10	10	9
Spain	---	---	9
Finland	1	---	5
Switzerland	1	---	5
United Kingdom	5	5	5
Japan	1	1	4
Germany	---	---	3
All other destination markets	37	36	17
Total Canada exports	163	148	107
Value (1,000 dollars)			
Exports from Canada to the United States	2,888,042	2,632,432	1,329,060
Exports from Canada to other major destination markets.--			
China	359,486	267,691	288,957
Malta	475,644	492,244	452,591
Spain	---	---	264,589
Finland	50,002	---	120,269
Switzerland	43,037	---	261,988
United Kingdom	231,008	220,181	218,952
Japan	32,445	32,911	104,662
Germany	---	---	92,747
All other destination markets	1,241,971	1,322,890	538,422
Total Canada exports	5,321,635	4,968,349	3,672,237

Table continued on next page.

Table IV-7 -- Continued

Aircraft greater than 15,000 kgs: Exports from Canada by destination market, 2014-16

Destination market	Calendar year		
	2014	2015	2016
Unit value (1,000 dollars per unit)			
Exports from Canada to the United States	29,774	30,610	32,416
Exports from Canada to other major destination markets.--			
China	32,681	26,769	32,106
Malta	47,564	49,224	50,288
Spain	---	---	29,399
Finland	50,002	---	24,054
Switzerland	43,037	---	52,398
United Kingdom	46,202	44,036	43,790
Japan	32,445	32,911	26,165
Germany	---	---	30,916
All other destination markets	33,567	36,747	31,672
Total Canada exports	32,648	33,570	34,320
Share of quantity (percent)			
Exports from Canada to the United States	59.5	58.1	38.3
Exports from Canada to other major destination markets.--			
China	6.7	6.8	8.4
Malta	6.1	6.8	8.4
Spain	---	---	8.4
Finland	0.6	---	4.7
Switzerland	0.6	---	4.7
United Kingdom	3.1	3.4	4.7
Japan	0.6	0.7	3.7
Germany	---	---	2.8
All other destination markets	22.7	24.3	15.9
Total Canada exports	100.0	100.0	100.0

Note.--Global trade at the 6-digit level includes primarily out-of-scope products (military aircraft, cargo aircraft, used passenger aircraft, and large civil aircraft that do not match the scope of these investigations).

Note.--These data are all exports of Bombardier. Two other aerospace companies in Canada, Diamond Aircraft and Viking Air produce small jets that weight less than 15,000 kgs and are therefore not included in these export data. "Our Aircraft," <http://www.diamondaircraft.com/our-aircraft/>; Viking Aircraft, <https://www.vikingair.com/viking-aircraft>.

Source: Official exports statistics under HS subheading 8802.40 as reported by Statistics Canada GTA database, accessed May 10, 2016.

END-OF-PERIOD INVENTORIES

Bombardier *** during 2014-16, January to March 2016, and January to March 2017. In addition, U.S. importers/purchasers' end-of-period inventories reflect the number of 100- to 150-seat LCA in their fleet. Therefore, these numbers are not true inventories of merchandise available for sale.

PROJECTED U.S. IMPORTS AND/OR PURCHASES OF 100- TO 150-SEAT LCA

Table VII-8 presents data on project U.S. imports and/or purchases, by source, during 2017-21. These data show that *** of projected imports/purchases are of ***. *** during 2017-21. In addition, ***.

Table VII-8

100- to 150-seat LCA: Projected U.S. imports and/or purchases, by source, 2017-21

* * * * *

ANTIDUMPING OR COUNTERVAILING DUTY ORDERS IN THIRD-COUNTRY MARKETS

There have been no antidumping duty, countervailing duty, or safeguard investigations on aircraft in any third country.

INFORMATION ON NONSUBJECT COUNTRIES¹²

European Union

Airbus is the only producer of 100- to 150-seat LCA that operates final production facilities in nonsubject countries. Final production facilities for the Airbus A319ceo and Airbus A319neo are located in Hamburg, Germany and Tianjin, China.¹³ However, as of March 2017, the United States has not imported any subject aircraft from China.¹⁴ Therefore, Germany is the only nonsubject source of 100- to 150-seat LCA. Airbus also operates a production facility in the United States, but ***.

¹² 100- to 150-seat LCA are imported under HTS 8802.40.0040 which covers all passenger aircraft greater than 15,000 kg. This is an extremely broad category which includes all passenger planes ranging from smaller regional jets to the largest category of civil aircraft. Export analysis of specific aircraft models would therefore be impractical due to the range of aircraft covered by the reporting number.

¹³ Airbus, "Final Assembly and Tests," <http://www.airbus.com/company/aircraft-manufacture/how-is-an-aircraft-built/final-assembly-and-tests/>.

¹⁴ Official U.S. imports based on General Imports using statistical reporting numbers 8802.40.0040 (accessed on May 23, 2017).

Based on the Ascend database,¹⁵ Airbus delivered 54 A319ceo aircraft units to U.S. purchasers in the United States between 2007 and 2016, representing 28.1 percent of U.S. deliveries of 100- to 150-seat LCA for that period. For comparison, Boeing delivered 138 737-700 aircraft units during the same period, accounting for the remaining 71.9 percent of U.S. deliveries. Between 2017 and 2021, a projected shift in aircraft model deliveries is reflected by the replacement of the Boeing 737-700 and Airbus A319ceo models with their derivatives, the Boeing 737 MAX 7 and Airbus A319neo models. Projected U.S. imports/purchases of subject 100- to 150-seat LCA between 2017 and 2021 include 30 Boeing 737 MAX 7 units, 75 Bombardier CS100 units, and 18 Airbus A319neo units. There are no current projected deliveries of the Bombardier CS300 model to U.S. purchasers in the United States. Therefore, 14.6 percent of U.S. deliveries of 100- to 150-seat large civil aircraft are projected to be from nonsubject countries between 2017 and 2021.¹⁶

Brazil

Empresa Brasileira de Aeronáutica S.A. (“Embraer”) was founded in 1969 as Brazil’s state-owned aerospace company but was later privatized in 1994 following an economic crisis in the late 1980s.¹⁷ However, the Brazilian government retained a special class of shares in the company known as “golden shares” which allow for veto power over certain strategic decisions.¹⁸ Embraer focuses on manufacturing regional and executive jets. In 2011, it switched plans from designing an in-scope aircraft capable of transporting 130 to 160 passengers to instead focus on creating a redesign of its smaller E-Jet family.¹⁹

The Embraer E190-E2 and Embraer E195-E2 are the redesigned and slightly larger versions of the Embraer E190 and Embraer E195. The Embraer E195-E2 is Embraer’s largest aircraft offering and had its first flight on March 29, 2017. It is capable of transporting 120 passengers in a three-class seating arrangement and 132 passengers in a singular class. The Embraer E195-E2 has a range of 2,450 nautical miles.²⁰ The Embraer E190-E2 transports fewer passengers, 97 in a three-class seating arraignment and 106 in a singular class, but has a longer

¹⁵ Petition, Vol I, exh. 44. Data reported in this database may not fully match the data reported in questionnaire responses. The database, for example, ***. **.

¹⁶ Ibid.

¹⁷ Embraer, “Who We Are,” <http://www.embraer.com/en-US/ConhecaEmbraer/TradicaoHistoria/Pages/default.aspx>; Novais, “Understand Embraer,” The Brazil Business, June 13, 2012, <http://thebrazilbusiness.com/article/understand-embraer>; Embraer, “90’s Events,” <http://www.centrohistoricoembraer.com.br/sites/timeline/en-US/Pages/default.aspx#todos/1990>.

¹⁸ Embraer, “Governance,” <http://www.embraer.com/en-US/ConhecaEmbraer/Governanca/Pages/default.aspx>.

¹⁹ Trimble, “Embraer Commits to Re-Engined E-Jets,” FlightGlobal, November 10, 2011 <https://www.flightglobal.com/news/articles/embraer-commits-to-re-engined-e-jets-364603/>.

²⁰ Embraer, “E195-E2. The Profit Hunter,” <http://www.e2fleetsmart.com/e195-e2/>.

range of 2,850 nautical miles.²¹ While Embraer's new E-jet offerings are similar in seating capacity to 100- to 150-seat large civil aircraft, their lower nautical mile range classifies them as regional jets.

China

The Commercial Aircraft Corporation of China, Ltd. ("COMAC") is a state-owned corporation approved and jointly-invested in by the State Council of the People's Republic of China. COMAC was founded in 2008 and is comprised of nine organizations with responsibilities including research and development, manufacturing, customer service, and flight test centers. The main purpose of COMAC is to industrialize China's commercial aircraft industry through the production of both large civil aircraft as well as smaller, regional jets.²² COMAC has been working with other companies in an effort to expand its aerospace offerings. COMAC and Bombardier have recently been collaborating about a possible investment by COMAC into Bombardier's C Series program.²³ Additionally, on May 22, 2017, COMAC and United Aircraft Corporation ("UAC") (a Russian LCA producer) entered into a joint venture with the purpose of producing larger, wide-body jets capable of transporting around 280 passengers a distance of 6,500 nautical miles.²⁴

COMAC does not currently produce aircraft that fall within the scope of these investigations. Instead, its most similar aircraft are the slightly smaller COMAC ARJ21-700 and the slightly larger COMAC C919. The ARJ21-700 is a regional aircraft capable of transporting 78 passengers in a typical, two-class seating arrangement and has a range of 1,998 nautical miles.²⁵ A larger model, the ARJ21-900 has yet to launch, but it would still be classified as a regional jet rather than a 100- to 150-seat large civil aircraft.²⁶ Alternatively, the recent advent of the COMAC C919 is slightly larger than in-scope aircraft and capable of transporting 158 passengers in a typical, two-class seating arrangement. The COMAC C919 has a range of 2,999 nautical miles.²⁷

²¹ Embraer, "E190-E2," <http://www.e2fleetsmart.com/e190-e2/>.

²² COMAC, "Introduction," <http://english.comac.cc/aboutus/introduction/>.

²³ Weinland, "Chinese Group in Talks to Aid Struggling Jet Maker Bombardier," Financial times, <https://www.ft.com/content/0003ce56-3ba4-11e7-821a-6027b8a20f23>.

²⁴ The joint venture is the China-Russia Commercial Aircraft International Co., Ltd (CRAIC). COMAC, "China-Russia Commercial Aircraft International Co., Ltd Established," May 22, 2017, http://english.comac.cc/news/latest/201705/24/t20170524_5262164.shtml.

²⁵ COMAC, "ARJ21," <http://english.comac.cc/products/rj/>.

²⁶ Perrett, "With ARJ21-700 Certified, Focus Shifts to Support," Aviation Week, January 20, 2015, <http://aviationweek.com/commercial-aviation/arj21-700-certified-focus-shifts-support>.

²⁷ COMAC, "C919," <http://english.comac.cc/products/ca/>; Waldron, "Pictures: Comac C919 Lands after uneventful Maiden Sortie," FlightGlobal, May 5, 2017, <https://www.flightglobal.com/news/articles/comac-c919-lands-after-uneventful-maiden-sortie-436913/>.

Russia

In 2006, the Public Joint-Stock Company UAC was established by RF Presidential Decree No. 140 and became the largest aircraft manufacturing company in Russia.²⁸ The UAC, which is majority owned by the Russian Government, is comprised of approximately 30 Russian aircraft manufacturers and companies, including the Sukhoi Company and the Irkut Corporation.²⁹ Currently focused on producing military aircraft, the UAC is expecting to increase its share of civil aircraft production from 20 percent of revenues in 2017 to 45 percent of revenues by 2035. This change in strategic goals is estimated to boost UAC's share of the global civil aircraft market from 1 percent in 2017 to 4.5 percent in 2025.³⁰ The two main civil aircraft families projected to drive this expansion are the Irkut MC-21 and the Sukhoi Superjet 100.³¹

The Irkut MC-21-300 is capable of transporting 163 passengers in a typical, two-class seating arrangement and has a range of 3,186 nautical miles.³² A slightly smaller model, the Irkut MC-21-200, would be considered in-scope but is not currently in production with assembly of the first prototype scheduled to begin in 2017.³³ Once completed, the Irkut MC-21-200 would be capable of transporting 135 passengers in a typical, two-class seating arrangement a range of 3,240 nautical miles.³⁴ The Sukhoi Superjet 100 is a smaller, regional aircraft capable of transporting 98 passengers in a typical, two-class seating arrangement with a maximum range of 2,472 nautical miles.³⁵

²⁸ United Aircraft Corporation, "History," <http://www.uacrussia.ru/en/corporation/history/>.

²⁹ United Aircraft Corporation, "General Information," <http://www.uacrussia.ru/en/investors/>; Grossman, "Russia Says its New Commercial Airliner is as Good as Any Boeing or Airbus," Popular Mechanics, June 9, 2016. <http://www.popularmechanics.com/flight/a21270/russian-build-commercial-airliner/>.

³⁰ United Aircraft Corporation, "Strategy," <http://www.uacrussia.ru/en/corporation/strategy/>.

³¹ United Aircraft Corporation, "History," <http://www.uacrussia.ru/en/corporation/history/>.

³² United Aircraft Corporation, "MC-21 Aircraft Specification," <http://www.uacrussia.ru/en/aircraft/lineup/civil/ms-21/aircraft-specific/>.

³³ Pyadushkin, "Russia's MC-21 Airliner Prepares for First Flight," Aviation Week Shownews, July 12, 2016, <http://aviationweek.com/shownews/russia-s-mc-21-airliner-prepares-first-flight>.

³⁴ United Aircraft Corporation, "MC-21 Aircraft Specification," <http://www.uacrussia.ru/en/aircraft/lineup/civil/ms-21/aircraft-specific/>.

³⁵ United Aircraft Corporation, "Sukhoi Superjet 100 Aircraft Specifications," <http://www.uacrussia.ru/en/aircraft/lineup/civil/superjet-100/aircraft-specific/>.

APPENDIX A

***FEDERAL REGISTER* NOTICES**

The Commission makes available notices relevant to its investigations and reviews on its website, www.usitc.gov. In addition, the following tabulation presents, in chronological order, *Federal Register* notices issued by the Commission and Commerce during the current proceeding.

Citation	Title	Link
82 FR 20634 May 3, 2017	<i>100- to 150-Seat Large Civil Aircraft From Canada; Institution of Antidumping and Countervailing Duty Investigations and Scheduling of Preliminary Phase Investigations</i>	https://www.gpo.gov/fdsys/pkg/FR-2017-05-03/pdf/2017-08894.pdf
82 FR 24292 May 26, 2017	<i>100- to 150-Seat Large Civil Aircraft From Canada: Initiation of Countervailing Duty Investigation</i>	https://www.gpo.gov/fdsys/pkg/FR-2017-05-26/pdf/2017-10957.pdf
82 FR 24296 May 26, 2017	<i>100- to 150-Seat Large Civil Aircraft From Canada: Initiation of Less-Than-Fair-Value Investigation</i>	https://www.gpo.gov/fdsys/pkg/FR-2017-05-26/pdf/2017-10733.pdf

APPENDIX B
CONFERENCE WITNESSES

CALENDAR OF PUBLIC PRELIMINARY CONFERENCE

Those listed below appeared as witnesses at the United States International Trade Commission’s preliminary conference:

- Subject:** 100- to 150-Seat Large Civil Aircraft from Canada
- Inv. Nos.:** 701-TA-578 and 731-TA-1368 (Preliminary)
- Date and Time:** May 18, 2017 - 9:30 a.m.

Sessions were held in connection with these preliminary phase investigations in Courtroom A (room 100), 500 E Street, SW., Washington, DC.

OPENING REMARKS:

Petitioner (**Robert T. Novick**, Wilmer Cutler Pickering Hale and Dorr LLP)
Respondents (**Peter Lichtenbaum**, Covington & Burling LLP)

**In Support of the Imposition of
Antidumping and Countervailing Duty Orders:**

Wilmer Cutler Pickering Hale and Dorr LLP
Washington, DC
on behalf of

The Boeing Company

Raymond L. Conner, Vice Chairman, The Boeing Company

Charles Anderson, Principal, Capital Trade

Professor Jerry Nickelsburg, University of California Los Angeles

- Robert T. Novick**)
- Patrick J. McLain**)
- Jeffrey I. Kessler**) – OF COUNSEL
- Stephanie Hartmann**)
- William Desmond**)
- Sarah Licht**)

**In Opposition to the Imposition of
Antidumping and Countervailing Duty Orders:**

Dentons US LLP
Washington, DC
on behalf of

Delta Air Lines, Inc.

Greg May, Senior Vice President, Supply Chain Management &
Fleet, Delta Air Lines, Inc.

Joe Esposito, Vice President, Network Planning, Americas, Delta
Air Lines, Inc.

Scott McClain, Associate General Counsel, Delta Air Lines, Inc.

Yohai Baisburd)
) – OF COUNSEL
Daniel Morris)

Covington & Burling LLP
Washington, DC
on behalf of

Bombardier Inc.

Sebastien Mullot, Director, C Series Program, Commercial Aircraft
Division, Bombardier Inc.

Ross Mitchell, Vice President, Commercial Operations, Commercial
Division, Bombardier Inc.

Shara L. Aranoff)
) – OF COUNSEL
Peter Lichtenbaum)

Curtis, Mallet-Prevost, Colt & Mosle LLP
Washington, DC
on behalf of

Government of Canada

Colin Bird, Minister-Counsellor, Economic and Trade, Embassy of
Canada

Daniel L. Porter)
) – OF COUNSEL
James P. Durling)

REBUTTAL/CLOSING REMARKS:

Petitioner (**Robert T. Novick**, Wilmer Cutler Pickering Hale and Dorr LLP)

Respondents (**Peter Lichtenbaum**, Covington & Burling LLP *and*

Yohai Baisburd, Dentons US LLP)

-END-

APPENDIX C
SUMMARY DATA

Table C-1
100- to 150-seat LCA: Summary data concerning the U.S. market, 2014-16

* * * * *

Table C-2
All other single-aisle LCA: Summary data concerning the U.S. market, 2014-16

* * * * *

Table C-3
All single-aisle LCA: Summary data concerning the U.S. market, 2014-16

* * * * *

APPENDIX D

**COMMENTS BY U.S. PRODUCERS AND U.S. IMPORTERS/PURCHASERS
REGARDING THE COMPARABILITY OF 100- TO-150-SEAT LCA VS.
OTHER SINGLE AISLE LCA**

**U.S. PRODUCERS' COMMENTS REGARDING THE COMPARABILITY OF
100- TO 150-SEAT LCA VS. OTHER SINGLE-AISLE LCA**

The Commission requested that U.S. producers compare the differences and similarities in the physical characteristics and end uses between 100- to-150 seat LCA and other single-aisle LCA, and that they provide a narrative discussion for the comparability ratings they provided. Their responses are as follows:

* * * * *

**U.S. PRODUCERS' COMMENTS REGARDING THE COMPARABILITY OF
100- TO 150-SEAT LCA VS. OTHER SINGLE-AISLE LCA**

The Commission requested that U.S. producers compare the ability to substitute 100- to 150-seat LCA and other single-aisle LCA in the same application, and that they provide a narrative discussion for the comparability ratings they provided. Their responses are as follows:

* * * * *

**U.S. PRODUCERS' COMMENTS REGARDING THE COMPARABILITY OF
100- TO 150-SEAT LCA VS. OTHER SINGLE-AISLE LCA**

The Commission requested that U.S. producers compare whether 100- to 150-seat LCA and other single-aisle LCA are manufactured in the same facilities, from the same inputs, on the same machinery and equipment, and using the same employees, and that they provide a narrative discussion for the comparability ratings they provided. Their responses are as follows:

* * * * *

**U.S. PRODUCERS' COMMENTS REGARDING THE COMPARABILITY OF
100- TO 150-SEAT LCA VS. OTHER SINGLE-AISLE LCA**

The Commission requested that U.S. producers compare the channels of distribution/market situation through which 100- to 150-seat LCA and other single-aisle LCA are sold (*i.e.*, sold direct to end users, through distributors, etc.), and that they provide a narrative discussion for the comparability ratings they provided. Their responses are as follows:

* * * * *

**U.S. PRODUCERS' COMMENTS REGARDING THE COMPARABILITY OF
100- TO 150-SEAT LCA VS. OTHER SINGLE-AISLE LCA**

The Commission requested that U.S. producers compare the perceptions as to the differences and/or similarities in 100- to 150-seat LCA and other single-aisle LCA in the market (*e.g.*, sales/marketing practices), and that they provide a narrative discussion for the comparability ratings they provided. Their responses are as follows:

* * * * *

**U.S. PRODUCERS' COMMENTS REGARDING THE COMPARABILITY OF
100- TO 150-SEAT LCA VS. OTHER SINGLE-AISLE LCA**

The Commission requested that U.S. producers compare whether prices are comparable or differ between 100- to 150-seat LCA and other single-aisle LCA, and that they provide a narrative discussion for the comparability ratings they provided. Their responses are as follows:

* * * * *

U.S. IMPORTERS'/PURCHASERS' COMMENTS REGARDING THE COMPARABILITY OF 100- to 150-SEAT LCA VS. OTHER SINGLE-AISLE LCA

The Commission requested that U.S. importers/purchasers compare the differences and similarities in the physical characteristics and end uses between 100- to 150-seat LCA and other single-aisle LCA, and that they provide a narrative discussion for the comparability ratings they provided. Their responses are as follows:

* * * * *

U.S. IMPORTERS'/PURCHASERS' COMMENTS REGARDING THE COMPARABILITY OF 100- to 150-SEAT LCA VS. OTHER SINGLE-AISLE LCA

The Commission requested that U.S. importers/purchasers compare the ability to substitute 100- to 150-seat LCA and other single-aisle LCA in the same application, and that they provide a narrative discussion for the comparability ratings they provided. Their responses are as follows:

* * * * *

U.S. IMPORTERS'/PURCHASERS' COMMENTS REGARDING THE COMPARABILITY OF 100- to 150-SEAT LCA VS. OTHER SINGLE-AISLE LCA

The Commission requested that U.S. importers/purchasers compare whether 100- to 150-seat LCA and other single-aisle LCA are manufactured in the same facilities, from the same inputs, on the same machinery and equipment, and using the same employees, and that they provide a narrative discussion for the comparability ratings they provided. Their responses are as follows:

* * * * *

U.S. IMPORTERS'/PURCHASERS' COMMENTS REGARDING THE COMPARABILITY OF 100- to 150-SEAT LCA VS. OTHER SINGLE-AISLE LCA

The Commission requested that U.S. importers/purchasers compare the channels of distribution/market situation through which 100- to 150-seat LCA and other single-aisle LCA are sold (*i.e.*, sold direct to end users, through distributors, etc.), and that they provide a narrative discussion for the comparability ratings they provided. Their responses are as follows:

* * * * *

U.S. IMPORTERS’/PURCHASERS’ COMMENTS REGARDING THE COMPARABILITY OF 100- to 150-SEAT LCA VS. OTHER SINGLE-AISLE LCA

The Commission requested that U.S. importers/purchasers compare the perceptions as to the differences and/or similarities in 100- to 150-seat LCA and other single-aisle LCA in the market (e.g., sales/marketing practices), and that they provide a narrative discussion for the comparability ratings they provided. Their responses are as follows:

* * * * *

U.S. IMPORTERS’/PURCHASERS’ COMMENTS REGARDING THE COMPARABILITY OF 100- to 150-SEAT LCA VS. OTHER SINGLE-AISLE LCA

The Commission requested that U.S. importers/purchasers compare whether prices are comparable or differ between 100- to 150-seat LCA and other single-aisle LCA, and that they provide a narrative discussion for the comparability ratings they provided. Their responses are as follows:

* * * * *