Utility Scale Wind Towers from Canada, Indonesia, Korea, and Vietnam

Investigation Nos. 701-TA-627-629 and 731-TA-1458-1461 (Final)

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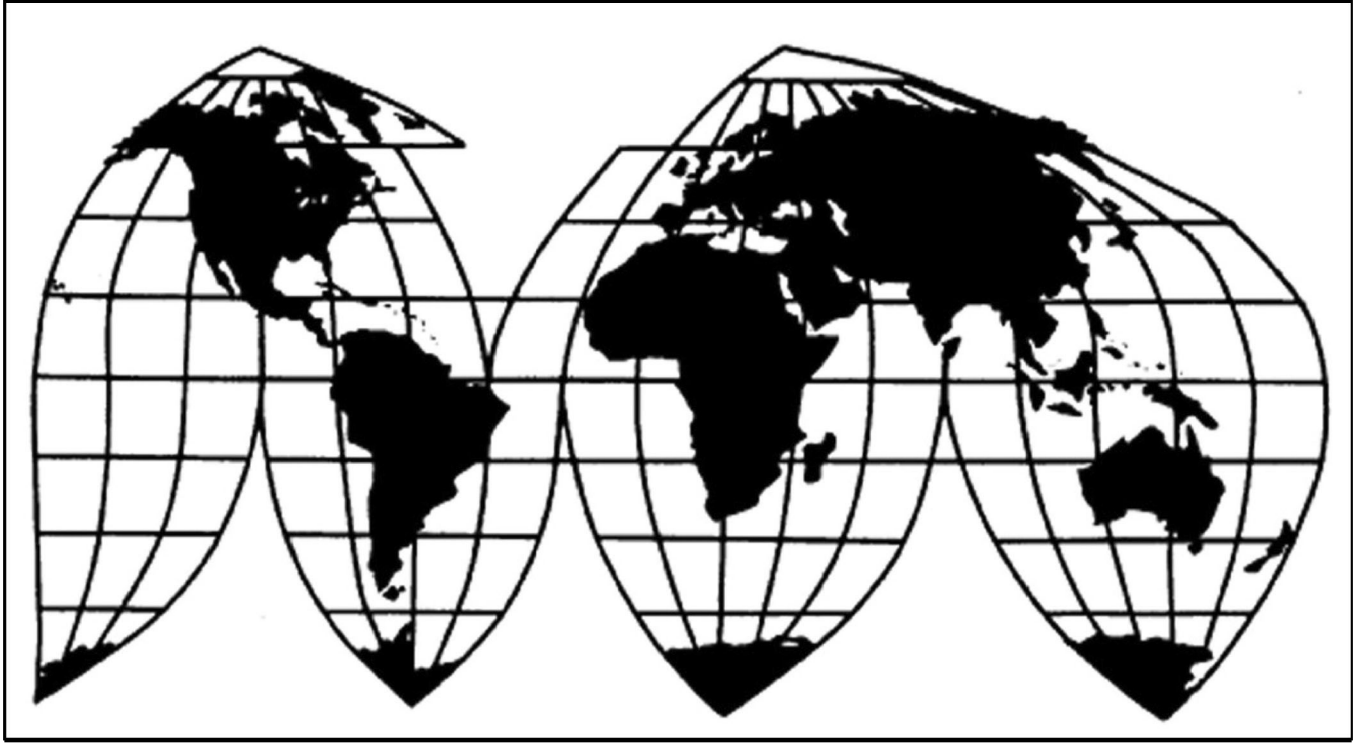

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Note.—Information that would reveal confidential operations of individual concerns may not be published. Such information is identified by brackets in confidential reports and is deleted and replaced with asterisks (***) in public reports.

UNITED STATES INTERNATIONAL TRADE COMMISSION

Investigation Nos. 701-TA-627-629 and 731-TA-1458-1461 (Final)

Utility scale wind towers from Canada, Indonesia, Korea, and Vietnam

DETERMINATIONS

On the basis of the record[1] developed in the subject investigations, the United States International Trade Commission ("Commission") determines, pursuant to the Tariff Act of 1930 ("the Act"), that an industry in the United States is materially injured by reason of imports of utility scale wind towers from Canada, Indonesia, Korea, and Vietnam, provided for in subheadings 7308.20.00 and 8502.31.00 of the Harmonized Tariff Schedule of the United States, that have been found by the U.S. Department of Commerce ("Commerce") to be sold in the United States at less than fair value ("LTFV"), and to be subsidized by the governments of Canada, Indonesia, and Vietnam.[2]

BACKGROUND

The Commission instituted these investigations effective July 9, 2019, following receipt of petitions filed with the Commission and Commerce by Arcosa Wind Towers Inc., Dallas, Texas; and Broadwind Towers Inc., Manitowoc, Wisconsin. The final phase of the investigations was scheduled by the Commission following notification of preliminary determinations by Commerce that imports of utility scale wind towers from Canada, Indonesia, and Vietnam were subsidized within the meaning of section 703(b) of the Act (19 U.S.C. 1671b(b)) and that imports of utility scale wind towers from Canada, Indonesia, Korea, and Vietnam were sold at LTFV within the meaning of 733(b) of the Act (19 U.S.C. 1673b(b)). Notice of the scheduling of

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[1] The record is defined in § 207.2(f) of the Commission's Rules of Practice and Procedure (19 CFR 207.2(f)).

[2] The Commission also finds that imports subject to Commerce's affirmative critical circumstances determination are not likely to undermine seriously the remedial effect of the countervailing duty order on utility scale wind towers from Indonesia and the antidumping duty orders on utility scale wind towers from Korea and Vietnam.

the final phase of the Commission's investigations and of a public hearing 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* on March 20, 2020 (85 FR 16127). In light of the restrictions on access to the Commission building due to the COVID-19 pandemic, and in accordance with 19 U.S.C. 1677c(a)(1), the Commission conducted its hearing on June 25, 2020 by video conference as set forth in procedures provided to the parties. All persons who requested the opportunity were permitted to participate.

Views of the Commission

Based on the record in the final phase of these investigations, we determine that an industry in the United States is materially injured by reason of imports of utility scale wind towers ("wind towers") from Canada, Indonesia, Korea, and Vietnam found by the U.S. Department of Commerce ("Commerce") to be sold in the United States at less than fair value ("LTFV") and subsidized by the governments of Canada, Indonesia, and Vietnam. We also find that critical circumstances do not exist with respect to imports of wind towers from Indonesia, Korea, and Vietnam subject to Commerce's affirmative critical circumstances determinations.

I. Background

The petitioner, the Wind Tower Trade Coalition ("Coalition"), consisting of two domestic producers of wind towers, filed the petitions in these investigations on July 9, 2019.[1] The Commission reached affirmative preliminary determinations in these investigations effective on August 23, 2019.[2]

In the final phase of these investigations, witnesses for the Coalition appeared at the hearing with counsel and submitted written witness testimony, and the Coalition submitted prehearing and posthearing briefs.[3] The following respondents participated in the final phase of these investigations by submitting written witness testimony, prehearing and posthearing briefs, and participating in the Commission's hearing:

- American Wind Energy Association ("AWEA"), a trade association for the U.S. wind industry;[4]

- Dongkuk S&C Co., Ltd. ("DKSC"), a producer and exporter of subject merchandise in Korea;

[1] Domestic producers, Arcosa Wind Towers Inc. ("Arcosa") and Broadwind Towers, Inc. ("Broadwind") are the two members of the Coalition. *See* Petition, Vol. I at Exhibit I-1.

[2] 84 Fed. Reg. 45171 (August 28, 2019).

[3] In light of the restrictions on access to the Commission building due to the COVID-19 pandemic, the Commission conducted its hearing by videoconference as set forth in procedures provided to the parties.

[4] The AWEA's membership includes over 1,000 member companies. Hearing Tr. at 105 (Stern).

- General Electric Renewable Energy ("GE"), a U.S. importer and purchaser of subject merchandise;

- CS Wind Vietnam Co., Ltd., a producer and exporter of subject merchandise in Vietnam, and CS Wind Corporation, a U.S. importer of subject merchandise (collectively "CS Wind");

- PT Kenertec Power System, a producer and exporter of subject merchandise in Indonesia, and Kousa International LLC, a U.S. importer and purchaser of subject merchandise (collectively, "Kenertec");

- Marmen Inc. and Marmen Énergie Inc. ("Marmen Canada"), producers and exporters of wind towers in Canada, and Marmen Energy Co., ("Marmen Energy") a domestic producer of wind towers (collectively "Marmen");[5] and

- Vestas Towers America, Inc., ("Vestas Towers") a domestic producer of wind towers, and Vestas – American Wind Technology, Inc., a U.S. importer of subject merchandise (collectively, "Vestas").[6]

U.S. industry data for wind towers are based on the questionnaire responses of six firms, which accounted for all known U.S. production of wind towers in 2019.[7] U.S. import data are based on questionnaire responses received from seven U.S. importers, estimated to account for the vast majority of imports of wind towers in 2019.[8] Foreign producer data are based on the questionnaire responses of six firms that account for all known production of wind towers in Canada, Indonesia, Korea, and Vietnam.[9]

[5] Marmen's prehearing brief also includes an appendix prepared by Economic Consulting Services. It was originally filed as a separate brief on behalf of several respondents that had filed their own prehearing briefs; to comply with Commission rule 207.23, Marmen was permitted to refile it as an appendix to Marmen's prehearing brief.

[6] Witnesses from the AWEA, GE, Marmen, and Vestas appeared at the Commission's hearing.

[7] Confidential Report, INV-SS-081 (July 17, 2020) ("CR") at I-15, Public Report ("PR") at I-5.

[8] CR/PR at I-5, Table IV-1. CR/PR at I-5, Table IV-1. The Commission used questionnaire response data to calculate market shares and apparent U.S. consumption because the relevant HTS subheadings include out of scope merchandise and the questionnaire responses received account for the vast majority of imports of wind towers in 2019.

[9] CR/PR at I-5.

II. Domestic Like Product

A. In General

In determining whether an industry in the United States is materially injured or threatened with material injury by reason of imports of subject merchandise, the Commission first defines the "domestic like product" and the "industry."[10] 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."[11] 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."[12]

By statute, the Commission's "domestic like product" analysis begins with the "article subject to an investigation," *i.e.*, the subject merchandise as determined by Commerce.[13] Therefore, Commerce's determination as to the scope of the imported merchandise that is subsidized and/or sold at less than fair value is "necessarily the starting point of the Commission's like product analysis."[14] The Commission then defines the domestic like product in light of the imported articles Commerce has identified.[15] 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

[10] 19 U.S.C. § 1677(4)(A).

[11] 19 U.S.C. § 1677(4)(A).

[12] 19 U.S.C. § 1677(10).

[13] 19 U.S.C. § 1677(10). The Commission must accept Commerce's determination as to the scope of the imported merchandise that is subsidized and/or sold at less than fair value. *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).

[14] *Cleo Inc. v. United States*, 501 F.3d 1291, 1298 (Fed. Cir. 2007); *see also Hitachi Metals, Ltd. v. United States*, Case No. 19-1289, slip op. at 8-9 (Fed. Circ. Feb. 7, 2020) (the statute requires the Commission to start with Commerce's subject merchandise in reaching its own like product determination).

[15] *Cleo*, 501 F.3d at 1298 n.1 ("Commerce's {scope} finding does not control the Commission's {like product} determination."); *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); *Torrington Co. v. United States*, 747 F. Supp. 744, 748–52 (Ct. Int'l Trade 1990), *aff'd*, 938 F.2d 1278 (Fed. Cir. 1991) (affirming the Commission's determination defining six like products in investigations where Commerce found five classes or kinds).

uses" on a case-by-case basis.[16] No single factor is dispositive, and the Commission may consider other factors it deems relevant based on the facts of a particular investigation.[17] The Commission looks for clear dividing lines among possible like products and disregards minor variations.[18]

B. Product Description

In its final determinations, Commerce defined the imported merchandise within the scope of these investigations as:

> certain wind towers, whether or not tapered, and sections thereof. Certain wind towers support the nacelle and rotor blades in a wind turbine with a minimum rated electrical power generation capacity in excess of 100 kilowatts and with a minimum height of 50 meters measured from the base of the tower to the bottom of the nacelle (*i.e.,* where the top of the tower and nacelle are joined) when fully assembled.
>
> A wind tower section consists of, at a minimum, multiple steel plates rolled into cylindrical or conical shapes and welded together (or otherwise attached) to form a steel shell, regardless of coating, end-finish, painting, treatment, or method of manufacture, and with or without flanges, doors, or internal or external components (*e.g.,* flooring/decking, ladders, lifts, electrical buss boxes, electrical cabling, conduit, cable harness for nacelle generator, interior lighting,

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[16] *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.* 747 F. Supp. at 749 n.3 (("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).

[17] *See*, *e.g.*, S. Rep. No. 96-249 at 90-91 (1979).

[18] *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.").

tool and storage lockers) attached to the wind tower section. Several wind tower sections are normally required to form a completed wind tower.

Wind towers and sections thereof are included within the scope whether or not they are joined with nonsubject merchandise, such as nacelles or rotor blades, and whether or not they have internal or external components attached to the subject merchandise.

Specifically excluded from the scope are nacelles and rotor blades, regardless of whether they are attached to the wind tower. Also excluded are any internal or external components which are not attached to the wind towers or sections thereof, unless those components are shipped with the tower sections.

Further, excluded from the scope of the antidumping duty investigations are any products covered by the existing antidumping duty order on utility scale wind towers from the Socialist Republic of Vietnam. *See Utility Scale Wind Towers from the Socialist Republic of Vietnam: Amended Final Determination of Sales at Less Than Fair Value and Antidumping Duty Order*, 78 FR 11150 (February 15, 2013).

Merchandise covered by this investigation is currently classified in the Harmonized Tariff Schedule of the United States (HTSUS) under subheading 7308.20.0020 or 8502.31.0000. Wind towers of iron or steel are classified under HTSUS 7308.20.0020 when imported separately as a tower or tower section(s). Wind towers may be classified under HTSUS 8502.31.0000 when imported as combination goods with a wind turbine (*i.e.,* accompanying nacelles and/or rotor blades). While the HTSUS subheadings are provided for convenience and customs purposes, the written description of the scope of the investigation is dispositive.[19]

[19] *Utility Scale Wind Towers From Canada: Final Determination of Sales at Less Than Fair Value and Final Negative Determination of Critical Circumstances*, 85 Fed. Reg. 40239, 40240 (July 6, 2020); *Utility Scale Wind Towers From Indonesia: Final Determination of Sales at Less Than Fair Value and Final Negative Determination of Critical Circumstances*, 85 Fed. Reg. 40231, 40233 (July 6, 2020*); Utility Scale Wind Towers from the Republic of Korea: Final Determination of Sales at Less Than Fair Value and Final Affirmative Determination of Critical Circumstances*, 85 Fed. Reg. 40243, 40244 (July 6, 2020); *Utility*

Wind towers are large tubular steel towers used in wind turbines. Wind turbines, comprising a nacelle, rotor and tower, convert wind energy to electricity.[20] The wind towers within the scope definition are 50 meters or more in height and designed to support the nacelle and rotor blades in a wind turbine with a minimum rated electrical power generation capacity over 100 kilowatts. These towers are known in the wind industry as "utility scale" wind towers.[21]

C. Arguments of the Parties

Petitioner. Petitioner argues that the Commission should define a single domestic like product coextensive with the scope of the investigations as it did in its prior investigations and five-year reviews involving wind towers, and in its preliminary determinations in these investigations.[22]

Respondents. AWEA argues that wind towers for use offshore should be excluded from the investigations or defined to be a separate domestic like product. It argues that offshore wind towers have a different structure, manufacturing process and price, as well as a lack of interchangeability with wind towers for use onshore. Accordingly, it contends that the Commission should define them as a separate domestic like product.[23] No other respondent addresses the definition of the domestic like product.

Scale Wind Towers From the Socialist Republic of Vietnam: Final Determination of Sales at Less Than Fair Value and Final Affirmative Determination of Critical Circumstances, 85 Fed. Reg. *40226, 40229 (July 6, 2020); Utility Scale Wind Towers From Canada: Final Affirmative Countervailing Duty Determination and Final Negative Determination of Critical Circumstances*, 85 Fed. Reg. 40245, 40247 (July 6, 2020); *Utility Scale Wind Towers From Indonesia: Final Affirmative Countervailing Duty Determination and Final Affirmative Determination of Critical Circumstances*, 85 Fed. Reg. 40241, 40242 (July 6, 2020); *Utility Scale Wind Towers From the Socialist Republic of Vietnam: Final Affirmative Countervailing Duty Determination and Negative Determination of Critical Circumstances*, 85 Fed. Reg. 40229, 40231 (July 6, 2020).

[20] CR/PR at I-15 and Fig. I-1.

[21] CR/PR at I-15 to I-16.

[22] Petitioner's Prehearing Brief at 3-4. The Commission previously investigated wind towers from China and Vietnam. *See Utility Scale Wind Towers from China and Vietnam*, Inv. Nos. 701-TA-486 and 731-TA-1195-1196 (Final), USITC Pub. 4372 (Feb. 2013). It also recently conducted five-year reviews of the antidumping and countervailing duty orders resulting from those investigations. *See Utility Scale Wind Towers from China and Vietnam*, Inv. Nos. 701-TA-486 and 731-TA-1195-1196 (Review), USITC Pub. 4888 (April 2019).

[23] *See* AWEA's Prehearing Brief at 25-29. ***, AWEA states that Ventower is the only domestic producer currently producing offshore wind towers. *Id*. at 25 n.47. *See* CR/PR at I-34, I-34 n.94. AWEA

D. Analysis

In its preliminary determinations, the Commission defined a single domestic like product coextensive with the scope. It found that all wind towers share common physical characteristics and uses; channels of distribution; manufacturing facilities, production processes, and employees; and producer and customer perceptions. The Commission noted a lack of interchangeability and some differences in price among wind towers produced to different original equipment manufacturer ("OEM") specifications, but the record did not indicate, nor had any party argued, that any clear dividing line existed among wind towers built to particular designs.[24]

In the final phase of the investigations, at the request of one party, the Commission sought to collect information from market participants concerning wind towers for offshore applications.[25] No domestic firm reported producing or shipping wind towers for offshore applications.[26] The Commission does not define a separate domestic like product for an article not produced domestically because in doing so it would be defining a separate domestic industry consisting of no domestic producers.[27] AWEA also urges the Commission to exclude

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did not pursue its domestic like product argument at the Commission's hearing or in its posthearing brief.

[24] *Utility Scale Wind Towers from Canada, Indonesia, Korea, and Vietnam,* Inv. Nos. 701-TA-627-629 and 731-TA-1458-1461 (Preliminary) USITC Pub. 4952 (Aug. 2019) at 7-9 ("USITC Pub. 4952").

[25] In its comments on the draft questionnaires, Marmen requested that the Commission collect information on offshore wind towers. *See* Marmen's Comments on Draft Questionnaires (October 21, 2019) at 1-2.

[26] CR/PR at I-34, I-34 n.94. Nor did any importer report importing wind towers for offshore applications. *Id.*

[27] The statute defines the "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." 19 U.S.C. § 1677(10). Emphasizing the statute's mandate to identify a domestic item that is like or most similar to subject imports, the Commission has reasoned that defining a domestic like product that is not produced domestically would ignore this mandate. It also would contradict the statute's definition of the relevant 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 product (19 U.S.C. § 1677(4);" there would be no domestic producers to include in this separate domestic industry and on which to base its material injury analysis.

For products not made domestically, the Commission has found that parties seeking a separate domestic like product must identify a domestically produced variant that is "most similar in characteristics and uses" with such product. Accordingly, the Commission's consistent practice has been to reject requests by parties to define a separate domestic like product for merchandise not manufactured domestically and for which parties have not identified a domestically produced variant most similar in characteristics and uses. *See*, e.g., *Certain Aluminum Extrusions from China*, Inv. Nos.

offshore wind towers from these investigations, but the Commission has no authority to exclude products from Commerce's scope of investigation.[28] We therefore find no merit in AWEA's argument concerning exclusion or a separate domestic like product for offshore wind towers.

There is no other information in the record that suggests a domestic like product definition different from that in the preliminary phase is warranted.[29] Therefore, we define a single domestic like product consisting of wind towers coextensive with the scope of the investigations.

III. Domestic Industry and Related Parties

A. Background

The statute defines the relevant industry as the "producers as a {w}hole 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."[30] 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.

We must determine whether any producer of the domestic like product should be excluded from the domestic industry pursuant to section 771(4)(B) of the Tariff Act. This provision allows the Commission, if appropriate circumstances exist, to exclude from the domestic industry producers that are related to an exporter or importer of subject merchandise

701-TA-475 and 731-TA-1177 (Review), USITC Pub. 4677 at 11-16 (Mar. 2017); *Grain-Oriented Electrical Steel from Germany, Japan, and Poland*, Inv. Nos. 731-TA-1233, 1234, and 1236 (Final), USITC Pub. 4491 at 10 & n.49 (Sept. 2014).

[28] *See e.g., USEC v. United States,* 34 Fed. Appx. 725, 730 (2002) ("The ITC may not modify the class or kind of imported merchandise examined by Commerce."). The Commission has also repeatedly rejected arguments that it should effectively "exclude" an article from the scope of the investigation by defining that article to be a separate domestic like product. *See, e.g., Activated Carbon from China*, Inv. No. 731-TA-1103 (Final), USITC Pub. 3913 (April 2007) at 7-8 n.18; *Certain Cold-Rolled Steel Products from Australia, India, Japan, Sweden, and Thailand*, Inv. Nos. 731-TA-965, -971-72, -979, and -981 (Final), USITC Pub. 3536 (Sept. 2002) at 10 n.31, and USITC Pub. 3437 (Nov. 2001) (Preliminary) at 5 & n.20 ("...it is the role of Commerce, not the Commission, to determine the scope of the subject merchandise.").

[29] *See* CR/PR at I-15 to I-31.

[30] 19 U.S.C. § 1677(4)(A).

or which are themselves importers.[31] Exclusion of such a producer is within the Commission's discretion based upon the facts presented in each investigation.[32]

In its preliminary determinations, the Commission found that two domestic producers – Marmen Energy and Vestas Towers – met the statutory definition of a related party because they were related to an importer or a producer and exporter of subject merchandise.[33] The Commission, however, found that appropriate circumstances did not exist to exclude either related party, on the basis that both domestic producers had a primary interest in domestic production.[34]

In the final phase of these investigations, the record continues to show that Marmen Energy and Vestas Towers are related parties. Marmen Energy is *** by foreign producer and exporter Marmen Canada, Inc., and is affiliated with Marmen Énergie Inc. (Canada) and Marmen Inc. (Canada) (collectively referred to as "Marmen Canada").[35] Domestic producer Vestas Towers is *** by Vestas Wind Systems A/S and affiliated with an importer of subject merchandise, Vestas American Wind Technology Incorporated.[36] Consequently, each of these firms is subject to exclusion from the domestic industry pursuant to the related parties provision. We discuss below whether it is appropriate to exclude either firm.

[31] *See Torrington Co. v. United States*, 790 F. Supp. 1161, 1168 (Ct. Int'l Trade 1992), *aff'd without opinion*, 991 F.2d 809 (Fed. Cir. 1993); *Sandvik AB v. United States*, 721 F. Supp. 1322, 1331-32 (Ct. Int'l Trade 1989), *aff'd mem*., 904 F.2d 46 (Fed. Cir. 1990); *Empire Plow Co. v. United States*, 675 F. Supp. 1348, 1352 (Ct. Int'l Trade 1987).

[32] The primary factors the Commission has examined in deciding whether appropriate circumstances exist to exclude a related party include the following:

(1) the percentage of domestic production attributable to the importing producer;

(2) the reason the U.S. producer has decided to import the product subject to investigation (whether the firm benefits from the LTFV sales or subsidies or whether the firm must import in order to enable it to continue production and compete in the U.S. market);

(3) whether inclusion or exclusion of the related party will skew the data for the rest of the industry;

(4) the ratio of import shipments to U.S. production for the imported product; and

(5) whether the primary interest of the importing producer lies in domestic production or importation. *Changzhou Trina Solar Energy Co. v. USITC*, 100 F. Supp.3d 1314, 1326-31 (Ct. Int'l. Trade 2015); *see also Torrington Co. v. United States*, 790 F. Supp. at 1168.

[33] USITC Pub. 4952 at 10-11.

[34] USITC Pub. 4952 at 10-11.

[35] CR/PR at Table III-2.

[36] CR/PR at Table III-2.

B. Arguments of the Parties

Petitioner. Petitioner contends that appropriate circumstances exist to exclude both Vestas Towers and Marmen Energy from the definition of the domestic industry as related parties. Petitioner argues that Marmen Energy manufactures and sells "hybrid" towers with subsidized top sections of wind towers produced by Marmen Canada and bottom and middle sections of those towers produced in the United States by Marmen Energy. According to petitioner, the imported top sections provide an unfair advantage, which results in ***.[37] Petitioner also asserts that Marmen Energy's *** during the period of investigation ("POI") while its *** at the end of the POI.[38]

Regarding Vestas Towers, petitioner states that the domestic producer's ***. It argues that Vestas Towers' reliance on subject imports ***. Further, petitioner alleges that these trends result in *** during the POI than were reported by Vestas Towers in the preliminary phase of these investigations.[39]

Respondents. Marmen disagrees that appropriate circumstances exist to exclude Vestas Towers and Marmen Energy from the domestic industry as related parties. Marmen asserts that Marmen Energy is the *** largest domestic producer, the company's primary interest lies in domestic production, it *** its production capacity throughout the POI and did not import subject merchandise, and it did not skew the domestic industry's data as its operating margins ***. Marmen maintains that the top sections of the hybrid towers are imported by Marmen Energy's customer in order to maximize the production of mid and base sections from Marmen Energy's facilities and reduce transportation costs.[40]

Marmen contends that Vestas Towers is the *** domestic producer, it imports only to supplement its production, its ratio of imports to production *** over the POI, and its financial results are ***. Further, Marmen notes that the Commission observed in its preliminary determinations that Vestas Towers reported *** during the POI, suggesting that it continues to have an interest in domestic production.[41]

[37] Petitioner's Prehearing Brief at 7-9.
[38] Petitioner's Prehearing Brief at 7-9.
[39] Petitioner's Prehearing Brief at 10-11.
[40] Marmen's Prehearing Brief at 5-7; Marmen's Posthearing Brief, Attachment A at 30-31.
[41] Marmen's Prehearing Brief at 8-9 (citing *Preliminary Determinations*, USITC Publication 4952 at 9-11).

C. Analysis

Marmen Energy. Marmen Energy is the *** largest U.S. producer of wind towers, accounting for *** percent of reported U.S. production of wind towers in 2019.[42] Marmen Energy produced full tower equivalents [43] of *** towers in 2017, *** towers in 2018, and *** towers in 2019.[44] Marmen Energy produced and shipped both full towers and partial towers (base and middle sections) during the POI.[45] During the period of investigation, its parent company Marmen Canada produced and exported from Canada to the United States full tower equivalents of *** towers in 2017, *** towers in 2018, *** towers in 2019. [46] Marmen Canada produced and exported both full towers and partial towers (top sections) during the POI.[47] Marmen Energy opposes the petitions concerning Canada and ***.[48]

Marmen Energy did not import or purchase subject merchandise during the period of investigation.[49] Marmen Energy produced base and middle sections for customers that purchased top sections produced and exported by Marmen Canada to make a complete tower.[50] At the beginning of the period in 2017, the majority of U.S. shipments of wind towers imported from Canada were full towers, but by the end of the period in 2019, the majority of U.S. shipments of wind towers imported from Canada were partial towers.[51]

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[42] CR/PR at Table III-1.

[43] U.S. producers were instructed to report units as complete towers, or in wind tower equivalents (e.g., one section of a wind tower comprised of four sections would be 0.25 towers). U.S. Producer's Questionnaire at 3.

[44] CR/PR at Table III-4.

[45] Marmen's U.S. Producer Questionnaire Response at II-7 and II-11.

[46] CR/PR at Table VII-3.

[47] Marmen's Foreign Producer Questionnaire Response at II-11.

[48] CR/PR at Table III-1; Marmen Energy's U.S. Producer Questionnaire Response at I-4.

[49] Marmen's Post-Hearing Brief, Attachment A at 30. Because Marmen Energy did not import wind towers (and had no affiliate importer that did so), the Commission cannot calculate a percentage of Marmen Energy's (or an affiliated importer's) imports to its domestic production.

[50] Marmen explained that transportation costs to different sites explained its production of top sections (which are smaller than middle and base sections) in Canada and its production of middle and base sections in the United States. Hearing Tr. at 240, 315-316 (Pellerin). Purchasers of its wind towers imported top sections from Marmen Canada and purchased middle and base sections from Marmen Energy to form a full tower. Marmen refers to wind towers made of Marmen Energy base and middle sections and Marmen Canada top sections as "hybrid towers." *See, e.g.*, Marmen Post-Hearing Brief, Attachment A at 30.

[51] CR/PR at VII-3, E-3 and Table E-1. During the POI, U.S. shipments of partial towers imported from Marmen Canada totaled *** tower equivalents valued at *** in 2017, *** tower equivalents valued at *** in 2018, and *** tower equivalents valued at *** in 2019; U.S. shipments of full towers imported from Marmen Canada totaled *** towers valued at *** in 2017, *** towers valued at *** in 2018, and

Marmen Energy reported operating at *** throughout the period of investigation.[52] Marmen Energy asserts that its capacity and production (measured by number of full tower equivalents) declined from *** towers in 2017 to *** towers in 2018 and *** towers in 2018 because ***.[53] Marmen Canada's exports thus do not appear to have displaced Marmen Energy's domestic production. Marmen Energy also made capital expenditures for its domestic production operations, totaling $*** in 2017, $*** in 2018, and $*** in 2019.[54]

We find that based on the foregoing, Marmen Energy's primary interest appears to lie in domestic production. It was the third largest producer of wind towers in the United States, produced at full capacity utilization during the POI, and continued to make capital expenditures for its domestic operations throughout the POI.[55] It had no imports of subject merchandise

*** towers valued at *** in 2019. CR/PR at VI-19 n.24, VII-3, Table E-1. By comparison, Marmen Energy's U.S. shipments of partial towers (base and middle sections) in full tower equivalents totaled *** towers valued at *** in 2017, *** towers valued at *** in 2018, and *** towers valued at *** in 2019. Marmen Energy U.S. Producer Questionnaire Response at II-11. Marmen's shipments of full towers totaled *** towers valued at *** in 2017, *** towers valued at *** in 2018, and *** towers valued at *** in 2019. Calculated from Marmen Energy U.S. Producer Questionnaire Response at II-7 and II-12.

[52] CR/PR at Table III-4. Marmen Energy asserted that ***. Marmen Energy's U.S. Producer Questionnaire Response at II-3d and II-3e. Thus, Marmen asserted that it operated at full capacity during the period of investigation but the ***. Marmen's Posthearing Brief, Answers to Questions at 22-23. ***.

[53] CR/PR at Table III-4; Marmen Energy U.S. Producer Questionnaire Response at II-21. The decline in Marmen Energy's production by weight was less than its production by quantity. Marmen Energy's production by weight declined from *** short tons in 2017, to *** short tons in 2018, to *** short tons in 2019. Marmen Energy's U.S. Producer Questionnaire Response at II-3b.

[54] CR/PR at Table VI-6. Marmen Energy's operating income margin was *** percent in 2017, *** percent in 2018, and *** percent in 2019; it *** the industry average in each year of the period of investigation, except in 2019. CR/PR at Table VI-5.

[55] The extent to which Marmen Canada may have been exporting more towers to the United States than Marmen Energy produced and shipped domestically as raised by petitioner does not address the issue of whether Marmen Energy's interest lies primarily in domestic production. We measure Marmen Energy's interest in domestic production based on its activities, which include operating at full capacity throughout the POI and producing the equivalent of *** largest producer of wind towers in the United States in 2019. Moreover, Marmen Energy did not import wind towers during the POI. As to Petitioner's argument that Marmen Energy gained a competitive advantage over other domestic producers by producing base and middle sections for customers that imported top sections from Marmen Canada, this ignores that Marmen Energy also shipped *** full towers over the three years of the POI and that its operations were not limited to producing base and middle sections. Marmen's U.S. Producer Questionnaire Response at II-21. Marmen Energy's strategy to manage its supply constraints by producing base and middle sections that customers could then combine with imported top sections from Marmen Canada may have allowed Marmen Energy to serve customers that it would otherwise not been able to serve had it only produced full towers. However, to the extent this could be viewed as

during the POI, and there is no indication in the record that Marmen Canada exerts the type of control over Marmen Energy that would form the basis to exclude Marmen Energy on account of its affiliation with Marmen Canada. [56] We therefore find that appropriate circumstances do not exist to exclude it from the domestic industry.

Vestas Towers. Vestas Towers is the *** U.S. producer of wind towers, accounting for *** percent of reported U.S. production of wind towers in 2019.[57] During the period of investigation, *** imported subject merchandise from *** (*** towers in 2017, *** towers in 2018, and *** towers in 2019). *** also imported subject merchandise from *** (*** towers in 2018 and *** towers in 2019).[58] Vestas Towers ***.[59]

Vestas Towers' U.S. production was considerably larger than its affiliated firm's imports throughout the period of investigation. Specifically, Vestas Towers' U.S. production was *** towers in 2017, *** towers in 2018, and *** towers in 2019.[60] Its affiliated firm's subject imports from *** were equivalent to *** percent of Vestas Towers' domestic production in 2017, *** percent of its domestic production in 2018, and *** percent of its domestic production in 2019.[61] Vestas Towers states that its affiliated firm imported subject merchandise ***.[62] It reported operating at *** throughout the POI.[63]

Vestas Towers also reported capital expenditures during the period of investigation totaling $*** in 2017, $*** in 2018, and $*** in 2019.[64] It ***.[65] Its *** towers in 2019.[66] Although Vestas Towers *** utilized subject imports, the record indicates that its primary interest is in its domestic production operations.[67] We therefore find that appropriate circumstances do not exist to exclude Vestas Towers from the domestic industry.

Marmen Energy benefiting from the importation of less than fair value imports, any such benefit would be indirect and petitioner has not argued, for example, that this affected Marmen Energy's financial results. In any event, we do not consider this situation sufficient to outweigh the record evidence discussed above weighing in favor of not excluding Marmen Energy from the domestic industry.

[56] CR/PR at Table VI-5.

[57] CR/PR at Table III-1.

[58] CR/PR at Table III-9.

[59] CR/PR at Table III-1.

[60] CR/PR at Table III-9.

[61] CR/PR at Table III-9.

[62] CR/PR at Table III-9.

[63] CR/PR at Table III-4.

[64] CR/PR at Table VI-6.

[65] CR/PR at Table III-3.

[66] CR/PR at Table III-4.

[67] Vestas Towers' operating income ratio was also ***. Vestas Towers' operating income margin was *** percent in 2017, *** percent in 2018, and *** percent in 2019. CR/PR at Table VI-5. We note that,

Accordingly, we find that appropriate circumstances do not exist to exclude any firm as a related party and define the domestic industry to include all U.S. producers of wind towers.

IV. Cumulation[68]

For purposes of evaluating the volume and effects for a determination of material injury by reason of subject imports, section 771(7)(G)(i) of the Tariff Act requires the Commission to cumulate subject imports from all countries as to which petitions were filed and/or investigations self-initiated by Commerce on the same day, if such imports compete with each other and with the domestic like product in the U.S. market. In assessing whether subject imports compete with each other and with the domestic like product, the Commission generally has considered four factors:

(1) the degree of fungibility between subject imports from different countries and between subject imports and the domestic like product, including consideration of specific customer requirements and other quality related questions;

(2) the presence of sales or offers to sell in the same geographic markets of subject imports from different countries and the domestic like product;

(3) the existence of common or similar channels of distribution for subject imports from different countries and the domestic like product; and

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while Vestas Towers sold no towers on the merchant market during the POI, it reported its transfers at fair market value. CR/PR at VI-2, VI-2 n.8.

[68] 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 three 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 generally be deemed negligible. 19 U.S.C. §§ 1671b(a), 1673b(a), 1677(24)(A)(i), 1677(24)(B). The exceptions to this general provision are not pertinent here.

Based on questionnaire response data for July 2018 through June 2019, the most recent 12-month period for which data are available preceding the filing of the petitions, subject imports from Canada accounted for *** percent of total imports of wind towers, subject imports from Indonesia accounted for *** percent, subject imports from Korea accounted for *** percent, and subject imports from Vietnam accounted for *** percent. CR/PR at Table IV-3. Imports from each subject country are clearly above the 3.0 percent negligibility threshold.

(4) whether the subject imports are simultaneously present in the market.[69]

While no single factor is necessarily determinative, and the list of factors is not exclusive, these factors are intended to provide the Commission with a framework for determining whether the subject imports compete with each other and with the domestic like product.[70] Only a "reasonable overlap" of competition is required.[71]

A. Arguments of the Parties

Petitioner urges the Commission to cumulate subject imports from Canada, Indonesia, Korea, and Vietnam for purposes of its material injury analysis as it did for its preliminary determinations. Petitioner argues that wind towers from different sources are interchangeable as they are built to specifications set by purchasers of wind towers, the OEMs.[72] Petitioner also maintains that domestically produced wind towers and subject imports from all sources were simultaneously present in the U.S. market and marketed and sold in the same geographic markets directly to OEMs.[73]

Respondents do not dispute that cumulation for present material injury is appropriate.[74]

B. Analysis

We consider subject imports on a cumulated basis because the statutory criteria for cumulation are satisfied. Petitioner filed antidumping and countervailing duty petitions on

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[69] *See Certain Cast-Iron Pipe Fittings from Brazil, the Republic of Korea, and Taiwan*, Inv. Nos. 731-TA-278-280 (Final), USITC Pub. 1845 (May 1986), *aff'd*, *Fundicao Tupy, S.A. v. United States*, 678 F. Supp. 898 (Ct. Int'l Trade), aff'd, 859 F.2d 915 (Fed. Cir. 1988).

[70] *See*, *e.g.*, *Wieland Werke, AG v. United State*s, 718 F. Supp. 50 (Ct. Int'l Trade 1989).

[71] The Statement of Administrative Action (SAA) to the Uruguay Round Agreements Act (URAA), expressly states that "the new section will not affect current Commission practice under which the statutory requirement is satisfied if there is a reasonable overlap of competition." H.R. Rep. No. 103-316, Vol. I at 848 (1994) (*citing Fundicao Tupy, S.A. v. United States*, 678 F. Supp. at 902); *see Goss Graphic Sys., Inc. v. United States*, 33 F. Supp. 2d 1082, 1087 (Ct. Int'l Trade 1998) ("cumulation does not require two products to be highly fungible"); *Wieland Werke, AG*, 718 F. Supp. at 52 ("Completely overlapping markets are not required.").

[72] Petitioner emphasizes that a majority of domestic producers and U.S. importers/purchasers indicated that U.S. produced wind towers are "always" interchangeable with wind towers from Canada, Indonesia, Korea and Vietnam and that all wind towers from the four subject countries are "always" interchangeable among one another. Petitioner's Prehearing Brief at 12-14. *See* CR/PR at Table II-14.

[73] Petitioner's Prehearing Brief at 18-22.

[74] Hearing Tr. at 285 (Campbell).

imports from all four subject countries on the same day (July 9, 2019).[75] Therefore, the threshold requirement for cumulation is satisfied. The record also demonstrates a reasonable overlap of competition between subject imports from Canada, Indonesia, Korea and Vietnam, and between subject imports from each source and the domestic like product, as explained below.

Fungibility. The record indicates that wind towers are produced to order to proprietary design specifications set by the OEMs, the manufacturers of wind turbines.[76] The majority of U.S. producers and importers/purchasers[77] also reported that the domestic like product and wind towers from Canada, Indonesia, Korea, and Vietnam were "always" interchangeable in all comparisons.[78] In no instances when comparing the domestic product or wind towers from subject sources did any U.S. producer or importer/purchaser report that they were never interchangeable.[79]

Moreover, there is substantial overlap in tower size for shipments of the domestic like product and subject imports, and between wind tower imports from each subject country. In 2019, wind towers with a height of 80 to 89.9 meters accounted for the majority of U.S. shipments of the domestic like product, as well the majority of U.S. shipments of subject imports from Indonesia, Korea, and Vietnam and almost *** of U.S. shipments of subject imports from Canada.[80] In addition, the largest share of U.S. shipments of subject imports from Canada was of wind towers with a height between 90 and 99.9 meters, which was the second-largest category of U.S. shipments of domestic like product, accounting for almost *** of all U.S. shipments of domestic like product in 2019.[81]

In comparisons between products from different sources concerning 17 purchasing factors, most importer/purchasers reported that U.S. and subject wind towers were comparable on most factors, although one-half or more of responding importer/purchasers

[75] CR/PR at I-1. None of the statutory exceptions to cumulation applies.

[76] CR/PR at II-1. The *** U.S. importer/purchaser *** stated that once a wind tower is made to its specifications, it is interchangeable no matter its source. CR/PR at II-31.

[77] Because several firms both import and purchase wind towers, the Commission issued a single combined importer/purchaser questionnaire for the final phase of these investigations. CR/PR at I-4 n.19.

[78] CR/PR at Table II-14.

[79] CR/PR at Table II-14.

[80] CR/PR at Table IV-7.

[81] CR/PR at Table IV-7. There were also U.S. shipments of imports from each of the other subject countries in this size range during the POI. CR/PR at Table F-1.

indicated that U.S. suppliers were inferior to subject country suppliers in payment terms and price, and that U.S. suppliers were inferior to suppliers in Indonesia and Korea in availability.[82]

Channels of Distribution. During the POI, the domestic like product and subject imports were sold to end users, the OEMs.[83] The record also indicates that there is direct competition between domestic producers and subject producers for sales through a bidding process. It is commonplace for domestic producers to compete with subject producers for sales of wind towers by submitting bids to OEMs, the primary purchasers and importers of wind towers in the United States.[84] OEMs reported *** wind projects that involved at least one domestic producer and one subject producer submitting bids.[85]

Geographic Overlap. U.S. producers reported shipments to all nine geographic regions, though a majority of shipments were sold in the Lower Midwest[86] and Central Southwest.[87] Subject imports from Canada were concentrated in the Upper Midwest,[88] Lower Midwest and Central Southwest. Subject imports from Indonesia, Korea, and Vietnam were concentrated in the Central Southwest.[89] Thus, the record reflects a substantial overlap of shipments among domestic product and subject imports from each country in the Central Southwest.[90]

Simultaneous Presence in Market. Domestic producers' and U.S. importers' shipment data show that the domestic like product and wind towers from all subject sources were present in the U.S. market in 2018 and 2019.[91]

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[82] *See* CR/PR at Table II-13.

[83] CR/PR at II-3.

[84] *See e.g.*, CR/PR at Tables V-2 (project supplied by three domestic producers and subject imports from Canada, Indonesia, Korea, and Vietnam) and V-3 (project supplied by four domestic producers and subject imports from Canada and Indonesia). GE indicated that ***. CR/PR at V-11.

[85] CR/PR at Table V-1.

[86] The Lower Midwest was defined as Illinois, Indiana, Iowa, Kansas, Ohio, and Missouri. CR/PR at Table II-1.

[87] CR/PR at Tables II-1 and D-1. The Central Southwest was defined as Arkansas, Louisiana, Oklahoma, and Texas. *Id.*

[88] The Upper Midwest was defined as Michigan, Minnesota, Nebraska, North Dakota, South Dakota, and Wisconsin. CR/PR at Table II-1.

[89] CR/PR at Tables II-1 and D-1.

[90] *See* CR/PR at Tables II-1 and D-1. Border of entry data are available for towers and lattice masts under HTS statistical reporting number 7308.20.0020 (a basket category) based on official import statistics. *See* CR/PR at Table IV-9. These data show U.S. imports from Indonesia, Korea and Vietnam in this category primarily entering at the Southern border. Imports from Canada entered at the Northern border. *Id.*

[91] *See* CR/PR at Table IV-12. Import statistics are a basket category that includes imports of towers and lattice masts under HTS statistical reporting number 7308.20.0020. Imports from Canada were present in all 36 months of the POI. Imports from Indonesia were present in 23 of 36 months. Imports

Conclusion. The record indicates that subject imports from each subject country are fungible with the domestic like product and each other, that wind towers from each source are sold in similar channels of distribution and geographic markets, and that subject imports from each subject country and the domestic like product have been simultaneously present in the U.S. market. In light of the foregoing, we find that there is a reasonable overlap of competition between the domestic like product and imports from each subject country as well as between imports from each subject country. Accordingly, we analyze subject imports from Canada, Indonesia, Korea, and Vietnam on a cumulated basis for our analysis of whether the domestic industry is materially injured by reason of subject imports.

V. Material Injury by Reason of Subject Imports

A. Legal Standards

In the final phase of antidumping and countervailing duty investigations, the Commission determines whether an industry in the United States is materially injured or threatened with material injury by reason of the imports under investigation.[92] 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 operations.[93] The statute defines "material injury" as "harm which is not inconsequential, immaterial, or unimportant."[94] In assessing whether 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

from Korea were present in 26 of 36 months. Imports from Vietnam were present in 15 of 36 months, mostly beginning in July 2018. *See* CR/PR at Table IV-10. CS Wind, ***, had been under an existing antidumping duty order until March 2017, when Commerce excluded it from the order following litigation. CR/PR at I-7, I-7 n.11. Commerce's determination was affirmed by the U.S. Court of Appeals for the Federal Circuit in May 2018. *CS Wind Vietnam Co. v. United States*, 721 Fed. Appx. 993 (Fed. Cir. 2018).

[92] 19 U.S.C. §§ 1671d(b), 1673d(b). The Trade Preferences Extension Act of 2015, Pub. L. 114-27, amended the provision of the Tariff Act pertaining to Commission determinations of material injury and threat of material injury by reason of subject imports in certain respects. We have applied these amendments in these investigations.

[93] 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 ... and explain in full its relevance to the determination." 19 U.S.C. § 1677(7)(B).

[94] 19 U.S.C. § 1677(7)(A).

States.[95] 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."[96]

Although the statute requires the Commission to determine whether the domestic industry is "materially injured or threatened with material injury by reason of" unfairly traded imports,[97] 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.[98] 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.[99]

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 injury threshold.[100] In performing its examination, however, the Commission need not isolate

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[95] 19 U.S.C. § 1677(7)(C)(iii).

[96] 19 U.S.C. § 1677(7)(C)(iii).

[97] 19 U.S.C. §§ 1671d(a), 1673d(a).

[98] *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'g,* 944 F. Supp. 943, 951 (Ct. Int'l Trade 1996).

[99] The Federal Circuit, in addressing the causation standard of the statute, 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 further ratified in *Mittal Steel Point Lisas Ltd. v. United States*, 542 F.3d 867, 873 (Fed. Cir. 2008), where 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).

[100] 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

the injury caused by other factors from injury caused by unfairly traded imports.[101] 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.[102] It is clear that the existence of injury caused by other factors does not compel a negative determination.[103]

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."[104] The Commission ensures that it has "evidence in the record" to "show that the

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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.

[101] 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.").

[102] S. Rep. 96-249 at 74-75; H.R. Rep. 96-317 at 47.

[103] *See Nippon Steel Corp*., 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.").

[104] *Mittal Steel*, 542 F.3d at 876 &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

harm occurred 'by reason of' the LTFV imports," and that it is "not attributing injury from other sources to the subject imports."[105] The Federal Circuit has examined and affirmed various Commission methodologies and has disavowed "rigid adherence to a specific formula."[106]

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.[107] Congress has delegated this factual finding to the Commission because of the agency's institutional expertise in resolving injury issues.[108]

B. Conditions of Competition

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

1. Captive Production Provision

We consider below the applicability of the statutory captive production provision.[109]

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decision in *Swiff-Train v. United States*, 793 F.3d 1355 (Fed. Cir. 2015), the Federal Circuit affirmed the Commission's causation analysis as comporting with the Court's guidance in *Mittal*.

[105] *Mittal Steel*, 542 F.3d at 873 (quoting from *Gerald Metals*, 132 F.3d at 722), 877-79. We note that one relevant "other factor" may involve the presence of significant volumes of price-competitive nonsubject imports in the U.S. market, particularly when a commodity product is at issue. In appropriate cases, the Commission collects information regarding nonsubject imports and producers in nonsubject countries in order to conduct its analysis.

[106] *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.").

[107] We provide in our discussion below a full analysis of other factors alleged to have caused any material injury experienced by the domestic industry.

[108] *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.").

[109] The captive production provision, 19 U.S.C. § 1677(7)(C)(iv), as amended by the Trade Preferences Extension Act of 2015, provides:

(iv) CAPTIVE PRODUCTION – If domestic producers internally transfer significant production of the domestic like product for the production of a downstream article and sell significant production of the domestic like product in the merchant market, and the Commission finds that-

(I) the domestic like product produced that is internally transferred for processing into

a. Arguments of the Parties

Petitioner's Arguments. Petitioner argues that the Commission should find that the captive production provision applies in the final phase of these investigations.[110] It asserts that, as the Commission found in its preliminary determinations, the first criterion of the statute is satisfied because Vestas Towers, the only vertically integrated wind tower producer in the United States, ***.[111] Petitioner also contends that the second criterion of the statute is satisfied because the wind tower accounts for over half of the wind turbine's weight and thus is the "predominant material" input of the finished product.[112] Petitioner emphasizes that even if the Commission decides not to apply the captive production provision, it should consider Vestas's internal consumption as an important condition of competition and focus on the merchant market for its injury analysis because that is where the competition with subject imports is most intense.[113]

Respondents' Arguments. Marmen argues that the Commission should again find that the captive production provision does not apply because the second criterion is not satisfied. Marmen asks the Commission take captive consumption into account as a significant condition of competition, as it did in the preliminary phase, but also contends that a large portion of the wind tower market is shielded from the effects of subject imports.[114]

b. Analysis

The captive production provision can be applied only if, as a threshold matter, significant production of the domestic like product is internally transferred and significant production is sold in the merchant market. In these investigations, transfers to related firms accounted for between *** percent by quantity of the domestic industry's U.S. shipments of wind towers between 2017 and 2019.[115] Commercial shipments accounted for between ***

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that downstream article does not enter the merchant market for the domestic like product, and (II) the domestic like product is the predominant material input in the production of that downstream article.

[110] Petitioner's Prehearing Brief at 40-43.

[111] Petitioner's Prehearing Brief at 41.

[112] Petitioner's Prehearing Brief at 41; Petitioner's Posthearing Brief, Exhibit 1 at 77-79.

[113] Petitioner's Prehearing Brief at 43.

[114] Marmen's Prehearing Brief at 43-45.

[115] CR/PR at Table III-7. The definition of an "internal transfer" for purposes of the captive production provision was addressed in *Bethlehem Steel Corp. v. United States*, 294 F. Supp. 2d 1359,

percent and *** percent of the domestic industry's U.S. shipments in this period.[116] Therefore, we find that both internal transfers and merchant market sales constitute significant portions of the market.

The first criterion of the captive consumption provision concerns whether the domestic like product that is internally transferred for processing into downstream articles enters the merchant market for the domestic like product.[117] No domestic producers in these investigations reported diverting wind towers that were to be internally consumed to the merchant market, and therefore this first criterion is satisfied.[118]

The second criterion requires that the domestic like product be the predominant material input in the production of the downstream article. The Commission generally analyzes the second criterion in terms of costs and considers the share of the internally transferred product in relation to the total raw material cost of the downstream product.[119]

Petitioner argues that the Commission should apply a weight-based, rather than a value-based, analysis to determine whether wind towers are the predominant input in wind turbines. The Commission has, however, generally analyzed the captive consumption issue in terms of costs. We find no evidence on the record in these investigations that warrants departure from its standard analysis in these investigations. The record also does not contain current information in these investigations as to the relative weight of inputs into wind turbines.

Data in the record show that wind towers are not the predominant material input (in terms of cost) of the downstream product in which they are used, *i.e.*, wind turbines. Responding domestic producers reported that wind towers accounted for between *** of the finished cost of wind turbines.[120] As the wind tower simply supports the nacelle and rotor, the

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1364-1368 (Ct. Int'l Trade 2003). We calculate internal transfers to include internal consumption and transfers to related firms.

[116] CR/PR at Table III-7.

[117] *See*, *e.g.*, *Hot-Rolled Steel Products from Argentina and South Africa*, Inv. Nos. 701-TA-404, 731-TA-898, 905 (Final), USITC Pub. 3446 at 15-16 (Aug. 2001); *Certain Cold-Rolled Steel Products from Argentina, Brazil*, *China*, *Indonesia*, *Japan*, *Russia*, *Slovakia*, *South Africa*, *Taiwan*, *Turkey and Venezuela*, Inv. Nos. 701-TA-393 and 731-TA-829-40 (Final) (Remand), USITC Pub. 3691 at 2 & n.19 (May 2004).

[118] CR/PR at III-14.

[119] *See generally*, *e.g.*, *Polyethylene Terephthalate Film*, *Sheet and Strip from Brazil*, *China*, *Thailand*, *and the United Arab Emirates*, Inv. Nos. 731-TA-1131-1134 (Final), USITC Pub. 4040 (October 2008) at 17 n.103; *Polyethylene Terephthalate Film*, *Sheet*, *and Strip from India and Taiwan*, Inv. Nos. 701-TA-415 and 731-TA-933-34 (Final), USITC Pub. 3518 (June 2002) at 11 & n.51. The Commission has construed "predominant" material input to mean the main or strongest element, and not necessarily a majority, of the inputs by value. *See Polyvinyl Alcohol from Germany and Japan*, Inv. Nos. 731-TA-1015-16 (Final), USITC Pub. 3604 (June 2003) at 15 n.69.

[120] CR/PR at II-12 and III-15.

portion of the wind turbine that generates electricity, the wind tower also does not appear to be the main or most important part of the wind turbine.[121]

Conclusion. We conclude that the criteria for application of the captive production provision are not satisfied in these investigations. However, as the Commission did in the preliminary phase of these investigations and in the prior investigations involving wind towers, we recognize captive production as a significant condition of competition and consider the merchant market in our injury analysis along with the total market.

2. Demand Conditions

Wind towers are used in wind turbines for electrical power-generation projects. Demand for wind towers is therefore derived from demand for wind turbines and the installation of wind turbines in wind projects.[122]

Federal and state government incentive programs are an important influence on demand for wind towers. Federal programs encourage the building of wind projects, thereby stimulating demand for wind towers. In particular, the federal production tax credit ("PTC"), which is a tax credit per kilowatt-hour of wind generation for the first ten years of a wind project, is a major driver of demand for wind towers.[123] The PTC has been renewed three times since 2012 and was extended in 2019 for 2020. The value of the PTC changes from year to year; its value was 40 percent of the project in 2019 and 60 percent in 2020.[124] Wind projects are also eligible for the investment tax credit ("ITC"); each renewal of the PTC also included a renewal of wind projects' eligibility for the ITC. The ITC incentive levels for wind projects equaled 30 percent of a project's cost in 2009 but have been scaled down at the same rate as

[121] CR/PR at I-15.

[122] CR/PR at II-1 and II-12.

[123] CR/PR at II-14. CR/PR at II-14. CR/PR at II-14. In the original version of the PTC, only wind farm projects in commercial service by 2012 were eligible for the credit, which led to a push by wind farm developers to complete projects by the end of 2012, and a sharp decrease in turbine installations in 2013. CR/PR at II-13 to II-14 & Fig. II-1. In 2013, however, the PTC was renewed, and in this and subsequent versions of PTC legislation, projects were eligible for PTC credit if construction began by the expiration dates, which were also extended several times. CR/PR at II-14 to II-15 & Table II-3; Congressional Research Service, *The Renewable Electricity Production Tax Credit: In Brief*, April 29, 2020, pp. 4-5. Additionally, in May 2020, due to the COVID-19 pandemic, these incentives were extended (given "safe harbor") to allow projects an additional year to begin construction in order to qualify. CR/PR at II-15.

[124] CR/PR at Table II-3.

the PTC after 2016; the ITC will be 18 percent for wind projects begun between December 2019 and January 1, 2021.[125]

Additionally, many states have implemented renewable portfolio standards which require utilities to source a certain share of energy from renewable sources by a particular date. As of May 2019, 29 states and the District of Columbia had such mandatory standards in place.[126]

Apart from government initiatives, other factors also impact demand for wind towers, such as electricity demand in general and wind energy's cost competitiveness with other energy sources. Electricity is primarily produced from coal and natural gas, which accounted for almost two-thirds of all U.S. electricity generated in 2019. Wind energy accounted for 7 percent of total electricity generated in 2019.[127]

The levelized cost of energy ("LCOE") measures the per-kilowatt hour cost of producing electricity and is used to compare the cost competitiveness of different sources of energy. When tax credits are included, new onshore wind installations had a lower estimated LCOE ($36.6/MWh) compared to other sources, including geothermal, solar, and natural gas.[128] Prices for wind-generated electricity have declined steadily since 2017.[129]

Although currently a small portion of the electrical grid, the share of electricity generated from renewable energy sources, such as wind, has been steadily increasing. Wind accounted for 40 percent of all new electric generating capacity installed in the United States in 2019.[130]

Apparent U.S. consumption in the total market for wind towers increased by *** percent from 2017 to 2019, initially declining from *** towers in 2017 to *** towers in 2018 and then increasing to *** towers in 2019.[131] Apparent U.S. consumption of wind towers in the

[125] CR/PR at II-15.

[126] CR/PR at II-17.

[127] CR/PR at II-18.

[128] *See* CR/PR at Table II-5 (Energy Information Administration's estimates). According to the Department of Energy, record-low levels of energy power purchase agreements for wind generated electricity are attributable to declining costs, improved performance, historically low (but rising) interest rates, and low natural gas prices. CR/PR at II-20.

[129] CR/PR at II-20.

[130] CR/PR at II-18.

[131] CR/PR at Tables IV-13 and C-1. We have used questionnaire response data to calculate market shares and apparent U.S. consumption because the relevant HTS subheadings include towers of various sizes as well as lattice masts, including articles that are outside the scope of these investigations. *See* CR/PR at IV-1.

merchant market increased by *** percent from 2017 to 2019, declining from *** towers in 2017 to *** towers in 2018 and increasing to *** towers in 2019.[132]

The majority of market participants reported that demand for wind turbines increased or fluctuated since January 1, 2017.[133] Market participants attributed U.S. demand trends to the expected expiration of the PTC as well as to decreasing costs for wind-generated electricity and increased demand for renewable energy.[134]

3. Supply Conditions

The U.S. market was supplied by domestically produced wind towers and imports from subject and nonsubject countries. The domestic industry was the largest supplier of wind towers to the U.S. market during the period of investigation. Its share of apparent U.S. consumption increased from *** percent in 2017 to *** percent in 2018 before decreasing to *** percent in 2019.[135]

Six firms accounted for all known U.S. production of wind towers in the United States during the POI, with one firm, Vestas Towers, *** for use in its production of wind turbines.[136] The domestic industry's capacity increased by 2.9 percent from 2017 to 2019; three domestic producers reported expansions and/or improvements in their production processes.[137] Arcosa[138] ***.[139]

Cumulated subject imports were the second largest source of supply to the U.S. market. Their share of apparent U.S. consumption increased from *** percent in 2017 to *** percent in 2018 and *** percent in 2019.[140]

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[132] CR/PR at Tables IV-14 and C-2.

[133] CR/PR at II-22, Table II-8.

[134] CR/PR at II-22.

[135] CR/PR at Table IV-13. Its share of the merchant market increased from *** percent in 2017 to *** percent in 2018 and then declined to *** percent in 2019. CR/PR at Table IV-14.

[136] CR/PR at III-12 n.9.

[137] CR/PR at Tables III-3 and III-4. The domestic industry's capacity increased from 3,975 towers in 2017 to 4,017 towers in 2018 and 4,091 towers in 2019. CR/PR at Table III-4. ***. CR/PR at III-5 and Table III-4.

[138] Trinity Structural Towers changed its name to Arcosa in 2018. CR/PR at Table III-3.

[139] Arcosa indicated that it would need to ***. *See* Petitioner's Prehearing Brief at 31-32; Petitioner's Posthearing Brief, Exhibit 1 at 22 n. 88, Exhibit 3. ***. *See, e.g.,* Marmen's Prehearing Brief, Appendix at 68-69.

[140] CR/PR at Table IV-13. Cumulated subject imports' share of apparent U.S. consumption in the merchant market increased from *** percent in 2017 to *** percent in 2018 and *** percent in 2019. CR/PR at Table IV-14.

Nonsubject imports were the smallest source of supply to the U.S. market. Their share of apparent U.S. consumption was *** percent in 2017, *** percent in 2018, and *** percent in 2019.[141] Based on questionnaire data, principal nonsubject sources of U.S. imports of wind towers during the POI included ***.[142]

4. Substitutability and Other Conditions

The record indicates that there is a moderate-to-high degree of substitutability between domestically produced wind towers and wind towers imported from subject sources.[143] Wind towers produced to specifications provided by the OEMs are interchangeable with other towers produced to the same specifications.[144] As discussed above, the majority of U.S. producers and importers/purchasers reported that the domestic like product and wind towers from Canada, Indonesia, Korea, and Vietnam were always interchangeable in all comparisons.[145]

The record is mixed regarding the extent to which quality may limit substitutability between subject imports and the domestic product. GE emphasizes that it *** for wind towers, yet the record shows that GE ***.[146] Petitioners emphasize that U.S. producers are qualified with, and sell to, the major OEMs.[147] While there have been disputes concerning the quality of wind towers, petitioner contends that quality problems were minor and did not substantially limit substitutability between the domestic product and subject imports.[148] Indeed, the record shows that most importers/purchasers reported that the domestic like product and subject imports from each source were comparable in terms of quality meeting industry standards.[149] On balance, we conclude that quality concerns do not vitiate our general conclusion that there

[141] CR/PR at Table IV-13. Nonsubject imports' share of apparent U.S. consumption in the merchant market share also declined irregularly during the period of investigation, decreasing from *** percent in 2017 to *** percent in 2018, before increasing to *** percent in 2019. CR/PR at Table IV-14.

[142] CR/PR at IV-3.

[143] CR/PR at II-24.

[144] CR/PR at II-24.

[145] CR/PR at Table II-14.

[146] *See* GE's Final Comments at 6. GE explained that, as demand for towers increased, they ***. This suggests that *** issues did not limit purchases from *** by GE during the POI. GE's Posthearing Brief, Answers to Questions at 8-9.

[147] *See* Petitioner's Posthearing Brief, Exhibit 1 at 62-64. Petitioners assert that Broadwind is qualified at all 4 major OEMs, and that Arcosa is qualified at 3 of 4 major OEMs and has been in the process of becoming qualified with the fourth, ***, since ***. Id.

[148] CR/PR at Table II-13 (generally comparable with respect to quality meets standards and quality exceeds standards). *See also* CR/PR at Table II-15 (U.S. suppliers always or usually met minimum quality requirements).

[149] CR/PR at Table II-13.

is a moderate-to-high degree of substitutability between domestically produced wind towers and wind towers imported from subject sources.

The record also indicates that price is an important consideration in purchasing decisions. Four of seven importers/purchasers identified price to be a very important purchasing factor, along with several other considerations.[150] Three of five purchasers reported usually purchasing the lowest priced wind towers offered.[151] When comparing the domestic like product and wind towers from the subject countries, most responding domestic producers reported that factors other than price are sometimes or never significant.[152] Although most importers/purchasers reported that non-price factors are always or frequently significant, a majority also reported that U.S. and subject wind towers were comparable on most factors.[153]

Given the size of wind towers and the resulting expense in moving them, shipping costs can be substantial.[154] Importers/purchasers reported that U.S. transportation costs accounted for anywhere from *** percent of total delivered cost and most indicated that such costs were comparable for the domestic product and subject imports.[155] U.S. producers quote prices on an f.o.b. basis, and the inland transportation costs are typically the responsibility of the purchaser.[156] Respondents emphasize that the total delivered cost, rather than the f.o.b. price, is the purchaser's primary consideration, although, since f.o.b. price constitutes *** of delivered cost, the importance of delivered cost is not inconsistent with the reported importance of price in purchasing decisions.[157]

As discussed above, U.S. producers' shipments during the POI were concentrated in the upper Midwest, the lower Midwest, and the Central Southwest regions.[158] Over half of the

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[150] CR/PR at Table II-11. Four importers/purchasers also characterized availability, delivery terms, delivery time, payment terms, price, product consistency, product range, quality (both meeting and exceeding industry standards), reliability of supply, and U.S. transportation costs as very important. CR/PR at II-26.

[151] CR/PR at II-26.

[152] CR/PR at Table II-16.

[153] *See* CR/PR at Table II-13. However, a majority of importer/purchasers indicated that the domestic product is inferior to subject imports from Indonesia and Korea in terms of availability, and a majority of purchasers ranked U.S. product inferior to Vietnamese product in terms of product consistency, product range, and quality exceeding industry standards. *Id.*

[154] CR/PR at V-5.

[155] CR/PR at V-5 and Table II-13. The largest purchaser/importer *** reported that inland transportation costs were about *** percent. CR/PR at V-5. *** CR/PR at V-11.

[156] CR/PR at V-8. Importers/purchasers arrange transportation from the domestic producer's laydown yard (or the point of importation) to the wind project. CR/PR at I-27, I-27 n.78, V-5 n.10.

[157] *See, e.g.*, Marmen's Prehearing Brief at 46; GE Prehearing Brief at 44.

[158] CR/PR at Table D-1. The states in each region are listed in Table II-1.

subject imports were also shipped to the Central Southwest each year of the POI.[159] U.S. producers reported shipping 61.6 percent of their shipments up to 500 miles, 24.1 percent were between 501 and 1,000 miles, and 14.2 percent were over 1,000 miles.[160] Importers reported shipping 72.7 percent of their shipments up to 500 miles, 19.7 percent between 501 and 1,000 miles, and 7.5 percent over 1,000 miles.[161]

There are a limited number of OEMs that purchase wind towers. Four OEMs (***) accounted for almost all purchases and imports of wind towers during the POI.[162] Typically, domestic producers bid against foreign producers for contracts for sale of wind towers meeting specifications set by OEMs.[163] GE, the ***, indicated that it does not *** but instead ***.[164]

Wind towers are usually produced to order, and U.S. importers/purchasers reported lead times ranging from 100 to 270 days for U.S. producers and 155 to 270 days for U.S. importers.[165] Purchase contracts vary in length; *** contracts were almost entirely or entirely long-term (usually of *** years), while *** contracts were only short-term (of *** days), and *** contracts were annual.[166]

Steel plate is the primary raw material used in making wind towers, though flanges and other raw materials also account for a substantial amount of the cost of goods sold ("COGS").[167] During each full year of the period of investigation, raw materials' share of COGS increased from *** percent to *** percent.[168]

Some domestic producers utilize a variety of arrangements whereby the cost of raw materials is largely passed through to customers.[169] Producer *** utilizes conversion contracts that make purchasers responsible for procuring the raw materials, and Arcosa and Marmen generally pass through raw material costs to their customers through directed buys or other

[159] CR/PR at Table D-1.

[160] CR/PR at II-8.

[161] CR/PR at II-8.

[162] CR/PR at I-4 and II-2. *** also purchased wind towers during the POI but far fewer than the other OEMs. *Id.*

[163] CR/PR at II-24 and V-9. CS Wind and Kousa imported wind towers from their foreign affiliates and resold them in the U.S. market. *** contracts were (*** days), and *** contracts were annual. CR/PR at V-6, Table IV-1.

[164] CR/PR at V-11.

[165] CR/PR at II-24.

[166] CR/PR at V-6.

[167] *See* CR/PR at VI-1.

[168] CR/PR at Table VI-3. In the merchant market, raw materials' share of COGS increased overall from *** percent in 2017 to *** percent in 2019. CR/PR at Table IV-1.

[169] VI-18 to VI-19.

arrangements.[170] Smaller producers *** have more limited ability to pass through raw material costs.[171] The industry's ratio of raw material costs to net sales increased over the POI from 59.3 percent in 2017 to 65.8 percent in 2019.[172]

Since 2018, additional tariffs have been levied on the imported steel used to manufacture wind towers. In March 2018, the President imposed additional 25 percent *ad valorem* steel tariffs on iron and steel articles imported on or after March 23, 2018 pursuant to Section 232 of the Trade Expansion Act of 1962 ("Section 232 tariffs").[173] Four U.S. producers and five U.S. importers/purchasers reported increased steel costs as a result of the Section 232 tariffs.[174] The record indicates that prices for steel plate fluctuated in 2017, increased in 2108, and then decreased in 2019.[175]

In addition to the Section 232 tariffs on steel products, Section 301 tariffs have been imposed on wind towers and certain other raw materials from China used to produce wind towers, including steel plate.[176] These duties are an additional 25 percent on wind towers and 15 percent on raw materials (reduced to 7.5 percent in 2020).[177]

C. Volume of Subject Imports

Section 771(7)(C)(i) of the Tariff Act provides that 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."[178]

The volume of cumulated subject imports increased 58.9 percent overall during the POI, increasing from 990 wind towers in 2017 to 1,048 wind towers in 2018 and 1,573 in 2019.[179] The volume of cumulated subject imports rose at a faster rate than the *** percent increase in

[170] CR/PR at V-7 to 8, VI-20 to VI-21.

[171] CR/PR at V-7, VI-21 to VI-22.

[172] CR/PR at Table VI-3. In the merchant market, the industry's ratio of raw material costs to net sales increased over the POI from *** percent in 2017 to *** percent in 2019. CR/PR at Table VI-1.

[173] See I-14 to I-15.

[174] CR/PR at V-2.

[175] *See* CR/PR at Figure V-1.

[176] *See* CR/PR at I-12 to I-14.

[177] *See* CR/PR at I-12 to I-14. In addition, antidumping and countervailing duty orders on cut-to-length plate from Austria, Belgium, Brazil, China, France, Germany, Italy, Japan, Korea, South Africa, Taiwan, and Turkey entered into effect in 2017. CR/PR at V-3.

[178] 19 U.S.C. § 1677(7)(C)(i).

[179] CR/PR at Table IV-2. Shipments of cumulated subject imports increased by 59.2 percent overall during the POI, initially decreasing from 993 wind towers in 2017 to 971 wind towers in 2018 before increasing to 1,581 wind towers in 2019. CR/PR at Table C-1.

apparent U.S. consumption in the total market from 2017 to 2019,[180] and the cumulated subject imports gained market share. As a share of apparent U.S. consumption, cumulated subject imports' market share increased from *** percent in 2017 to *** percent in 2018 and *** percent in 2019.[181]

Based on the foregoing, particularly the increase in volume and market share from 2018 to 2019, we find that the volume of cumulated subject imports, and the increase in that volume, are significant in absolute terms and relative to consumption in the United States.

D. Price Effects of Subject Imports

Section 771(7)(C)(ii) of the Tariff Act provides that, in evaluating the price effects of the subject imports, 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.[182]

As addressed in section IV.B.4. above, the record indicates that there is a moderate-to-high degree of substitutability between domestically produced wind towers and the subject imports produced to OEM specifications and that price is one of several important factors in purchases. There are relatively few U.S. purchasers of wind towers.

Given the nature of wind tower procurements, the Commission collected bid data from five OEMs (***) that accounted for virtually all purchases of the domestic product and subject imports. These importers/purchasers reported data on 99 bidding events in which bids were

[180] CR/PR at Table C-1. In the merchant market, apparent U.S. consumption increased by *** percent from 2017 to 2019. CR/PR at Table C-2.

[181] CR/PR at Tables IV-13 and C-1. Cumulated subject imports' share of the U.S. merchant market increased from *** percent in 2017 to *** percent in 2018 and *** percent in 2019. CR/PR at Tables IV-14 and C-2.

[182] 19 U.S.C. § 1677(7)(C)(ii).

obtained both from at least one supplier of subject imports and one domestic producer.[183] The bidding processes for each of these OEMs varied to some degree, as discussed below.

GE was the *** importer/purchaser of wind towers by volume during the POI and accounted for approximately *** percent of purchases and imports of wind towers in 2019.[184] GE explained that ***.[185] These ***.[186]

***.[187] ***.[188] ***.[189]

*** provided bid data for particular wind projects. *** provided *** and *** provided data for ***.[190] *** of *** bid data were for specific wind projects in ***.[191]

In comparisons of bid data from ***, subject imports on both a f.o.b. and total delivered cost basis underbid domestic producers.[192] In 21 of 25 bid comparisons (involving 1,719 of 2,429 subject wind towers), subject imports were offered at lower prices on a f.o.b. and delivered basis than bids for domestic product from competing domestic producers.[193] Additional evidence on the record also shows that subject imports were generally lower priced than the domestic product. The average unit values of shipments of the subject imports by tower size were lower than those of domestically produced wind towers in 21 of 29 comparisons during the POI.[194] A majority of importers/purchasers also reported that with

[183] CR/PR at Table V-1. This analysis of the bid data does not include information from *** which stated that they were unable to provide complete bid data. CR/PR at V-10, V-23. ***. *See* CR/PR at Tables V-14 to V-19. In the one project for which Siemens purchased wind towers, Siemens reported purchasing both lower-priced subject imports and domestic towers. *See* CR/PR at V-24, Table V-14. ***. CR/PR at V-27. ***. *See* CR/PR at Tables V-19 to V-21.

[184] GE purchased *** towers in 2019 while apparent U.S. consumption was *** towers. *See* CR/PR at Table IV-11; GE Importer/Purchaser Questionnaire Response at II-5-12.

[185] GE's Posthearing Brief, Responses to Commission Questions at 1-3.

[186] CR/PR at V-11.

[187] *See* CR/PR at Tables V-2 to V-6.

[188] CR/PR at Tables V-2 to V-4.

[189] CR/PR at V-11.

[190] CR/PR at Tables V-6 to V-11.

[191] *See* CR/PR at Tables V-6 to V-11 (wind projects in ***).

[192] *See* CR/PR at Table V-12 and V-13. GE argues that its pricing data do not reflect underbidding by subject imports. GE's Prehearing Brief at 45-47 and Attachment C. ***. *See* GE's Prehearing Brief at Attachment C. ***. *See* GE's Importer/purchaser Questionnaire Response at III-2b-III-2e.

[193] *See* CR/PR at Table V-12 and V-13. Respondents have argued that the OEMs consider total delivered cost and not f.o.b. prices when purchasing wind towers because transportation costs are so substantial. *See, e.g.* Vestas' Posthearing Brief at 1; GE's Prehearing Brief at 42; Marmen's Prehearing Brief, Appendix at 19, 24. The subject import bid was below the domestic industry average in the same number of instances whether evaluating on a f.o.b. or delivered cost basis. *See Id.*

[194] *See* CR/PR at Appendix F. U.S. shipment AUVs for subject imports were lower than U.S. shipment AUVs for domestic sources in 21 observations, representing 2,529 towers. U.S. shipment AUVs for

respect to price the domestic product was inferior (*i.e.*, higher-priced) compared to subject imports from two of the four subject countries.[195]

Confirmed lost sales also indicate that subject imports were being sold at lower prices than the domestic product during the POI. Of seven responding importers/purchasers, *** reported that they had purchased imported wind towers from at least one subject country instead of the domestic product. All *** purchasers reported that subject import prices were lower than prices of the domestic product, and *** of the *** firms indicated that price was at least a primary reason for purchasing a total of *** wind towers from subject countries rather than domestically produced wind towers.[196] This quantity of wind towers was equal to *** percent of the *** wind towers imported from subject countries during the POI.[197] The confirmed lost sales demonstrate that subject imports were purchased instead of the domestic product because of their lower prices. This supports a finding that cumulated subject imports were often priced lower than the domestic like product and that subject imports gained sales and market share in the U.S. market through their lower prices.

In light of the importance of price in purchasing decisions for wind towers, the fact that the domestic like product and cumulated subject imports are moderately to highly substitutable, the pervasive underbidding and lower average sales values of cumulated subject imports, and substantial volume of lost sales due at least in part to price, we find that underselling by cumulated subject imports was significant.[198] Further, this significant underselling facilitated cumulated subject imports' significant increase in market share over the

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subject imports were higher than U.S. shipment AUVs for domestic sources in 8 observations, representing 761 towers. CR/PR at Table F-2.

[195] CR/PR at Table II-13. Importers/purchasers indicated domestic producers' prices were either inferior or comparable compared to imports from the other two subject countries. *Id.*

[196] CR/PR at V-31 to V-32, Tables V-24 and V-25. We observe that purchaser *** reported that price was a primary factor in its decisions to purchase subject imports instead of the domestic product but also indicated that *** played a role in its decisions. *Id.*; *** Importer/Purchaser Questionnaire Response at III-39 (EDIS Doc. 1533560). After ***. CR/PR at V-31 to V-32; e-mail from ***. *** *See* CR/PR at Tables V-6, V-7 and V-9; *see also* ***. CR/PR at II-26; ***. Thus, the record as a whole indicates that price was an important factor in *** decisions to purchase import subject imports.

[197] *See* CR/PR at Tables IV-1 and V-24.

[198] Respondents argue that underbidding data are not indicative of underselling because they do not necessarily reflect sales. Marmen's Final Comments at 12. Even if bids may not necessarily reflect actual sales, they do reflect prices offered and thus the prices at which subject imports were competing against domestic product in the U.S. market. Moreover, as discussed above purchasers confirmed that a significant volume of subject imports was purchased because of their lower price. CR/PR at Table V-24. Additionally, shipment AUVs also show that shipments of subject imports generally had lower AUVs than the shipments of domestic wind towers. CR/PR at Table F-2.

period of investigation, particularly in 2019, that led to a 4.2 percentage point decrease in domestic producer market share over the period of investigation.

We have also considered domestic price trends for wind towers during the POI. Those trends are difficult to discern in these investigations because there are no product-specific pricing data. Domestic producers' unit shipment AUVs by tower size experienced varying trends over the full POI. AUVs for domestic shipments of towers between 80 and 89.9 feet tall and towers between 100 and 109.9 feet both increased in price from 2017 to 2019,[199] while the AUV for domestic shipments of towers between 90 and 99.9 feet tall decreased from 2017 and 2019 and the AUV of towers between 110 and 119.9 feet tall decreased from 2018 to 2019, the only years for which data are available.[200] The unit sales values for the tower height ranges accounting for the largest quantity of sales of the domestic like product displayed no clear pattern, with one increasing from 2017 to 2019 and the other decreasing.[201] Given this record, we do not find that the cumulated subject imports had significant price-depressing effects on the prices of the domestic like product.[202]

We also consider whether subject imports prevented price increases that otherwise would have occurred to a significant degree. The industry faced increasing costs during the POI, due in large part to increasing steel plate costs.[203] The domestic industry's COGS to net sales ratio increased from 86.3 percent in 2017 to 91.8 percent in 2018, then declined to 90.9 percent in 2019, for an overall increase of 4.6 percentage points from 2017 to 2019.[204] In the

[199] CR/PR at Table F-1. The U.S. domestic shipment AUV for towers between 80 and 89.9 feet increased from *** dollars per tower in 2017 to *** dollars per tower in 2018, before declining slightly to *** dollars per tower in 2019. The U.S. domestic shipment AUV for towers between 100 and 109.9 feet increased from *** dollars per tower in 2017 to *** dollars per tower in 2018 and to *** dollars per tower in 2019. *Id*.

[200] CR/PR at Table F-1. The U.S. domestic shipment AUV for towers between 90 and 99.9 feet declined from *** dollars per tower in 2017 to *** dollars per tower in 2018, before increasing to *** dollars per tower in 2019. The U.S. domestic shipment AUV for towers between 110 and 119.9 feet decreased from *** dollars per tower in 2018 to *** dollars per tower in 2019. *Id*.

[201] CR/PR at Table F-1 (unit value increased for towers of 80 to 89.9 feet and decreased for towers of 90 to 99.9 feet).

[202] No importers/purchasers reported that domestic producers lowered their prices to meet subject import prices. *See* CR/PR at V-32.

[203] From 2017 to 2019 raw material costs per tower increased by *** percent in the merchant market and by 17.8 percent in the total market. CR/PR at Tables VI-1, VI-3. Four U.S. producers and five importer/purchasers indicated that the section 232 tariffs led to an increase in steel costs. *Id.* ***. CR/PR at VI-19 nn.23, 24.

[204] CR/PR at Tables VI-3 & C-1. The domestic industry's unit COGS increased from $272,946 per tower in 2017 to $292,574 in 2018 and $305,189 in 2019. CR/PR at Table VI-3. At the same time the average sales price per tower increased throughout the period, from $316,424 per tower in 2018 to $318,606 per tower in 2018 and to $335,731 per tower in 2019. CR/PR at VI-3.

merchant market, where competition with the subject imports is most direct, the domestic industry's COGS to net sales ratio increased from *** percent in 2017 to *** percent in 2018 and *** percent in 2019, for an overall increase of *** percentage points from 2017 to 2019.[205]

We find that these trends in COGS to net sales, particularly when considered in the context of apparent consumption, indicate that prices for domestic wind towers were suppressed. A deterioration in the ratio from 2017 to 2018 may be unsurprising given that apparent U.S. consumption declined *** percent in the total market and *** percent in the merchant market. However, when apparent U.S. consumption increased from 2018 to 2019 by *** percent in the total market and by *** percent in the merchant market, we would have expected the industry to have had markedly more success in passing along its costs in the form of higher prices. Instead, in 2019 the industry's COGS to net sales ratio declined by only 0.9 points in the total market and increased by *** percentage points in the merchant market.

We disagree with Marmen's argument that there is a lack of correlation between the domestic industry's COGS to net sales ratio and subject imports.[206] In 2019 when subject imports grew by over 60 percent in quantity, the domestic industry was able to improve its COGS to net sales ratio only to a small degree (total market) or not at all (merchant market). In any event, there need not be a perfect correlation between subject import trends and the trend in the industry's COGs to net sales ratio.[207]

We further find that shipments of subject imports, which are good substitutes for U.S.-made wind towers, increased in volume by 59.2 percent from 2017 to 2019 and by 62.8 percent from 2018 to 2019, and significantly undersold the domestic like product, are materially responsible for the inability of the domestic industry to achieve higher prices.

Given the significance of raw material costs and the nature of contracting in this industry, we have also examined developments with respect to conversion prices and costs.[208]

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[205] CR/PR at Tables VI-5 & C-1. In the merchant market, unit COGs increased from $*** per tower in 2017 to $*** in 2018 and $*** per tower in 2019. CR/PR at Table VI-1. At the same time in the merchant market the average commercial sales price decreased from *** per tower in 2018 to *** per tower in 2018, before increasing to *** per tower in 2019. CR/PR at Table VI-3.

[206] *See* Marmen's Posthearing Brief at 12-13.

[207] *See Siemens Energy Co. v United States*, 992 F.Supp.2d 1315, 1336 ("There is no support for {the} argument that there must be a perfect correlation between subject imports and COGS on a yearly basis.").

[208] The fact that some manufacturers had conversion contracts or other contractual provisions that passed through raw material costs in some form does not necessarily insulate them from cost-price squeezes resulting from raw material price increases. As the cost of raw materials rises in a pass-through type contract, the total price to the customer would increase, making the product more expensive in relation to competitors' products unless other components of the price are cut. We note

The spread between the domestic industry's effective conversion price and conversion cost, each as a ratio to net sales, declined overall during the POI. In the total market the spread fell from 13.8 points in 2017 to 8.1 points in 2018, then increased to 9.1 points in 2019; in the merchant market the spread declined from *** points in 2017 to *** points in 2018, then declined further to *** points in 2019.[209] The overall decline in the spread between the effective conversion price and conversion cost, in varying degrees for the total market and merchant market, was largely due to declines in the effective conversion price to net sales ratio. As with the overall COGS to net sales ratio, other things being equal the large growth in apparent U.S. consumption in 2019 should have afforded the industry the ability to price its wind towers in a way that better covered its costs and improved its gross profit ratio further.[210]

Respondents argue that wind-generated electricity must remain competitive with other energy sources in order to maintain demand, putting pressure throughout the wind turbine supply chain to keep costs low, and that wind-generated electricity prices have been declining steadily for the past decade.[211] However, demand for wind-energy installations was strong during the POI, and when tax credits were included, new onshore wind installations had a lower estimated levelized cost of energy compared to other sources including geothermal, solar, and natural gas.[212] This would have allowed some leeway for wind energy to remain competitive even with some higher cost components. Moreover, wind towers comprise only *** percent of

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that the spread between conversion prices and conversion costs declined, which suggests that even if raw material costs were being passed through, domestic producers' ability to pass through costs other than raw materials appears to have decreased. In other words, even if raw material costs were being passed through, prices to customers would not increase by the same amount as the increase in raw material costs, as domestic producers absorbed other costs. This is consistent with the rising COGS to net sales ratio discussed above, and indicative of a cost-price squeeze.

[209] CR/PR at Tables VI-1 and VI-3. These spreads are equivalent to the measure of gross profit as a ratio to net sales. *See* CR/PR at Tables VI-1 and VI-3.

[210] Domestic producers' gross profit ratio increased 0.9 percentage points from 2018 to 2019 in the total market and declined *** percentage points in the merchant market. CR/PR at Tables VI-1 and VI-3. Even under an analysis using raw material cost ratios rather than conversion costs, domestic producers experienced a cost-price squeeze during the POI. The ratio of total raw material costs to net sales increased steadily in the merchant market from *** percent in 2017 to *** percent in 2018 and *** percent in 2019; in the total market it increased from 59.3 percent in 2017 to 65.1 percent in 2018 and to 65.8 percent in 2019. CR/PR at Table VI-1 and Table VI-3.

[211] *See* CR/PR at II-20; AWEA's Prehearing Brief at 11-14. Marmen's Posthearing Brief, Attachment A at 2 and Attachment B at 2-5, 8-13; GE Posthearing Brief, Responses to Commissioner Questions at 38-39. These downstream competitive pressures with other energy sources also would likely cause the OEMs to seek wind towers from alternative less expensive sources, such as the subject imports. Indeed, the record indicates that the OEMs increasingly relied on lower-priced subject imports.

[212] CR/PR at II-20. Marmen's Posthearing Brief, Attachment A at 2 and Attachment B at 2-5, 8-13; GE Posthearing Brief, Responses to Commissioner Questions at 38-39.

the cost of wind turbines, which in turn comprise only a portion of the cost of developing wind farms.[213] The small share accounted for by wind towers in the cost of generating wind electricity, combined with improved performance of wind turbines,[214] minimizes the degree to which increases in the price of wind towers would increase the levelized cost of wind power relative to other power sources, and reduces the chance that projects would be canceled as a result of wind tower price increases, *i.e.,* that such price increases would reduce demand.[215] Thus, absent subject imports, domestic producers could reasonably have expected to increase prices to cover rising costs given these market conditions.[216] [217]

We find that in light of the pervasive underbidding and lower sales values, and the substantial volume of lost sales in part due to price, underselling by cumulated subject imports was significant. Further, this significant underselling facilitated cumulated subject imports' capture of significant market share and reduced the domestic industry's sales. We further find that subject imports prevented price increases that otherwise would have occurred to a significant degree. We therefore find that cumulated subject imports had significant adverse price effects on the domestic industry.

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[213] CR/PR at II-12. Other costs may include, for example, land acquisition, access road development, foundation construction, transmission line installation, and capital costs. *See also*, AWEA's Prehearing Brief at 4-5 (wind towers approximately 11 percent of LCOE of a wind project); Petitioner's Posthearing Brief at 58-59 (wind towers less than 10 percent of the cost of a particular project).

[214] CR/PR at II-20.

[215] *See also* CR/PR at II-12, II-34 (demand for wind towers likely to be inelastic). We also note that declining prices for wind energy would not necessarily increase the aversion of OEMs to cost increases, as efficient manufacturers seek to reduce costs even when demand is strong and their profits are high. In any case, as noted below, to the extent that downstream competitive pressures from other energy sources did make OEMs more averse to wind tower price increases, such pressures would likely cause the OEMs to seek wind towers from lower-cost subject imports, which they did as discussed above.

[216] Despite having lower market share in 2019 than in 2018, the domestic industry increased its production in 2019 due to the substantial increase in apparent U.S. consumption in 2019.

[217] We also note that *** U.S. producers stated that they had lowered prices or rolled back price increases to compete with subject imports. CR/PR at V-30. *** purchasers denied that domestic producers had lowered prices to match offers from subject imports or stated that they did not know. CR/PR at V-32. Yet, witnesses testified that OEM customers would ask that domestic producers match import prices, including in a specific incident in ***. CR/PR at VI-16 n.43; Petitioner's Posthearing Brief, Answers to Questions at 44-45. *See also* Hearing Tr. 32-34, 144, 148 (Blashford); 70, 146 (Cole). The record does not make clear ***. Regardless of the source of these particular towers, the incident indicated explicitly or implicitly that *** and such behavior is consistent with Respondents' frequent assertions that OEMs had a strong desire to cut wind tower costs during the POI.

E. Impact of Subject Imports[218]

Section 771(7)(C)(iii) of the Tariff Act provides that examining the impact of subject imports, the Commission "shall evaluate all relevant economic factors which have a bearing on the state of the industry."[219] These factors include output, sales, inventories, capacity utilization, market share, employment, wages, productivity, gross profits, net profits, operating profits, cash flow, return on investment, return on capital, ability to raise capital, ability to service debts, research and development, and factors affecting domestic prices. No single

[218] The statute instructs the Commission to consider the "magnitude of the dumping margin" in an antidumping proceeding as part of its consideration of the impact of subject imports. 19 U.S.C. § 1677(7)(C)(iii)(V). In its final determination with respect to subject imports from Canada, Commerce found a dumping margin of 4.94 percent for Marmen lnc./Marmen Energie Inc. and all other Canadian producers/exporters of wind towers. *Utility Scale Wind Towers From Canada: Final Determination of Sales at Less Than Fair Value and Final Negative Determination of Critical Circumstances*, 85 Fed. Reg. 40239, 40240 (July 6, 2020). In its final determination with respect to subject imports from Indonesia, Commerce found a dumping margin of 8.53 percent for PT Kenertec Power System and all other Indonesian producers/exporters of wind towers. *Utility Scale Wind Towers From Indonesia: Final Determination of Sales at Less Than Fair Value and Final Negative Determination of Critical Circumstances*, 85 Fed. Reg. 40231, 40232 (July 6, 2020). In its final determination with respect to subject imports from Korea, Commerce found a dumping margin of 5.41 percent for Dongkuk S&C Co., Ltd. and all other Korean producers/exporters of wind towers. *Utility Scale Wind Towers from the Republic of Korea: Final Determination of Sales at Less Than Fair Value and Final Affirmative Determination of Critical Circumstances*, 85 Fed. Reg. 40243, 40244 (July 6, 2020). In its final determination with respect to subject imports from Vietnam, Commerce found a dumping margin of 65.96 percent for the CS Wind Group. *Utility Scale Wind Towers From the Socialist Republic of Vietnam: Final Determination of Sales at Less Than Fair Value and Final Affirmative Determination of Critical Circumstances*, 85 Fed. Reg. 40226, 40228 (July 6, 2020). Commerce clarified that this investigation covers wind towers excluded from the existing antidumping duty order on wind towers from Vietnam. Accordingly, it covers only those wind towers exported by the CS Wind Group. *Id.* at 40228 n.19.

We also take into account in our analysis the fact that Commerce has made final findings that subject producers in the four subject countries are selling subject imports in the United States at less than fair value. In addition to this consideration, our impact analysis has considered other factors affecting domestic prices. Our analysis of the significant underselling of subject imports, described in both the price effects discussion and below, is particularly probative to an assessment of the impact of the subject imports.

[219] 19 U.S.C. § 1677(7)(C)(iii); *see also* SAA at 851 and 885 ("In material injury determinations, the Commission considers, in addition to imports, other factors that may be contributing to overall injury. While these factors, in some cases, may account for the injury to the domestic industry, they also may demonstrate that an industry is facing difficulties from a variety of sources and is vulnerable to dumped or subsidized imports.").

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."[220]

Measures of the domestic industry's output generally increased irregularly from 2017 to 2019, but did so to a lesser extent than growth in apparent U.S. consumption.[221] Increases in domestic production (*** percent)[222] and U.S. shipments (*** percent),[223] were each lower than the *** percent increase in apparent U.S. consumption from 2017 to 2019.[224]

The domestic industry's production capacity increased by 2.9 percent from 2017 to 2019,[225] and its capacity utilization fluctuated but increased overall, ending the POI at 70.8 percent.[226] The domestic industry's end-of-period inventories and inventories relative to its total shipments decreased steadily from 2017 to 2019.[227]

Like the factors relating to industry output, the domestic industry's employment indicators did not keep pace with the large growth in apparent U.S. consumption over the POI. The number of production-related workers ("PRWs") declined from 2017 to 2019, and wages

[220] 19 U.S.C. § 1677(7)(C)(iii). This provision was amended by the Trade Preferences Extension Act of 2015, Pub. L. 114-27.

[221] For our impact analysis, we have examined the data for the domestic industry as a whole. Nonetheless, we also have considered the data for the merchant market where competition with the subject imports is most intense.

[222] U.S. producers' production decreased from 2,764 towers in 2017 to 2,672 towers in 2018, but then increased to 2,895 towers in 2019. CR/PR at Tables III-4 and C-1. Following a similar trend, merchant market production was *** towers in 2017, *** towers in 2018, and *** and towers in 2019. *Id*.

[223] The quantity of domestic producers' U.S. shipments increased from 2,666 towers in 2017 to 2,672 towers in 2018 and 2,895 towers 2019. CR/PR at Tables III-4 and C-1. In the merchant market, the quantity of domestic producers' U.S. shipments increased from *** towers in 2017 to *** towers in 2018 and *** towers 2019. CR/PR at Tables III-4 and C-2.

[224] *See* CR Table C-1. In the merchant market, apparent U.S. consumption increased by *** percent while the increases in domestic production (*** percent) and U.S. shipments (*** percent) were more modest. *See* CR/PR at Tables III-4 and C-2.

[225] U.S. producers' production capacity increased from 3,975 towers in 2017 to 4,017 towers in 2018 and 4,091 towers in 2019. CR/PR at Tables III-4 and C-2. In the merchant market production capacity increased by *** percent from 2017 to 2019, from *** towers in 2017 to *** towers in 2018 and *** towers in 2019. *Id.*

[226] The domestic industry's capacity utilization decreased from 69.5 percent in 2017 to 66.5 percent in 2018, and then increased to 70.8 percent in 2019. CR/PR at Tables III-4 and C-1.

[227] The domestic industry's end-of-period inventories decreased from *** towers in 2017 to *** towers in 2018 and *** towers in 2019. CR/PR at Tables III-8 and C-1. As a ratio to total shipments, the domestic industry's end-of-period inventories decreased from *** percent in 2017 to *** percent in 2018 and *** percent in 2019. *Id*.

paid, hourly wages, total hours worked, and productivity showed modest increases over that period.[228]

Although the domestic industry's sales revenues increased over the POI, virtually all of the industry's financial indicia declined overall during the three full years.[229] Gross profits,[230] operating income,[231] operating income margin,[232] net income,[233] and net income ratio fluctuated but declined overall from 2017 to 2019.[234] Likewise, the industry's capital expenditures and research and development expenses fluctuated but declined over the period

[228] The domestic industry's number of production-related workers declined from 2,309 in 2017 to 2,149 in 2018 and then increased to 2,186 in 2019. CR/PR at Tables III-10 and C-1. Total wages paid decreased from $159.9 million in 2017 to $156.7 million in 2018 and then increased to $164.9 million in 2019. CR/PR at Tables III-10 and C-1. Hourly wages increased from $33.0 in 2017 to $35.6 in 2018 and then declined to $33.6 in 2019. *Id*. Hours worked declined from 4.9 million in 2017 to 4.4 million in 2018 and then returned to 4.9 million in 2019. *Id.* Productivity measured in towers per 10,000 hours increased from 5.7 in 2017 to 6.1 in 2018 and then declined to 5.9 in 2019. *Id*.

[229] The domestic industry's net sales revenues increased from $843.6 million in 2017 to $859.6 million in 2018 and $995.1 million in 2019. CR/PR at Tables VI-5 and C-1. In the merchant market, the domestic industry's net sales revenues decreased from $*** in 2017 to $*** in 2018 before increasing to $*** in 2019. CR/PR at Tables VI-5 and C-2.

[230] The domestic industry's gross profits decreased from $115.9 million in 2017 to $70.2 million in 2018 and then increased to $90.5 million in 2019. CR/PR at Tables VI-5 and C-1. In the merchant market, the domestic industry's gross profits decreased from $*** million in 2017 to $*** million in 2018 and then increased to $*** million in 2019. CR/PR at Tables VI-5 and C-2.

[231] The domestic industry's operating income decreased from $87.4 million in 2017 to $44.9 million in 2018 and then increased to $62.4 million in 2019. CR/PR at Tables VI-5 and C-1. Similarly, in the merchant market, the domestic industry's operating income decreased from $*** in 2017 to $*** in 2018 and then increased to $*** in 2019. CR/PR at Tables VI-5 and C-2.

[232] As a ratio to net sales, the domestic industry's operating income fell from 10.4 percent in 2017 to 5.2 percent in 2018 and then recovered to 6.3 percent in 2019. CR/PR at Tables VI-5 and C-1. In the merchant market, the domestic industry's operating income ratio fell from *** percent in 2017 to *** percent in 2018 and then recovered slightly to *** percent in 2019. CR/PR at Tables VI-5 and C-2.

[233] The domestic industry's net income decreased from $85.0 million in 2017 to $50.9 million in 2018 and $57.1 million in 2019. CR/PR at Tables VI-5 and C-1. The domestic industry's net income in the merchant market decreased from $*** in 2017 to *** in 2018 and $*** in 2019. CR/PR at Tables VI-5 and C-2.

[234] As a ratio to net sales, the domestic industry's net income fell from 10.1 percent in 2017 to 5.9 percent in 2018 and then 5.7 percent in 2019. CR/PR at Tables VI-5 and C-1. In the merchant market, the domestic industry's net income ratio fell from *** percent in 2017 to *** percent in 2018 and *** percent in 2019. CR/PR at Tables VI-5 and C-2. The industry's return on net assets also fell over the POI and its total net assets declined. *See* CR/PR at Table VI-7.

as a whole.[235] Four of six responding producers reported that the subject imports had negative effects on investment and growth and development.[236]

The domestic industry would reasonably have been expected to have substantially more sales, shipments, and revenues given the *** percent increase in apparent U.S. consumption from 2017 to 2019.[237] Instead, shipments of cumulated subject imports increased by 62.8 percent and significantly undersold the domestic like product over the POI.[238] As a result, the domestic industry was unable to maintain its market share, losing *** percentage points of market share, while subject imports gained *** percentage points from 2017 to 2019.[239] Had the domestic industry been able to further increase its output and sales by utilizing its additional unused production capacity, the domestic industry's production, shipments and revenues would have been higher and the industry's financial performance would not have declined to such an extent.[240] Had domestic prices not been significantly suppressed by subject imports, the industry's financial performance would have been materially better. Instead, the domestic industry suffered declines in virtually all its financial indicators over the POI.

Respondents argue that the domestic industry was unable to satisfy the sharp increase in consumption in 2019 due to capacity limitations, most notably in the Central Southwest

[235] The domestic industry's capital expenditures decreased from $41.8 million in 2017 to $26.7 million in 2018 and $17.3 million in 2019. CR/PR at Tables VI-6 and C-1. The domestic industry's research and development expenses also decreased from $*** in 2017 to $*** in 2018 before increasing to $*** in 2019. *Id*.

[236] CR/PR at Table VI-8.

[237] In the merchant market, apparent U.S. consumption increased by *** percent from 2017 to 2019. CR/PR at Table C-2.

[238] CR/PR at Tables IV-2, C-1. As noted above, respondents have argued that competitive pressures from other energy sources made OEMs more averse to wind tower price increases. To the extent that such pressures influenced downstream industries' propensity to cut costs, they would have led OEMs to buy towers from alternative less expensive sources, such as the subject imports. Indeed, the record indicates that the OEMs increasingly relied on lower-priced subject imports.

[239] CR/PR at Table C-1. In the merchant market, the domestic industry lost *** percentage points of market share while subject imports gained *** percentage points of share. CR/PR at Table C-2.

[240] We observe that the Trade Preferences Extension Act of 2015 added to the statute a provision stating that the existence of a profitable industry, or one whose performance has improved, does not foreclose an affirmative material injury determination. *See* 19 U.S.C. § 1677(7)(J); *see also Certain Hot-Rolled Steel Flat Products from Australia, Brazil, Japan, Korea, the Netherlands, Turkey, and the United Kingdom,* Inv. Nos. 701-TA-545-547 and 731-TA-1291-1297 (Final), USITC Pub. 4638 at 44 n.219 (Sept. 2016); *Cold-Rolled Steel Flat Products from Brazil, India, Korea, Russia, and the United Kingdom,* Inv. Nos. 701-TA-540, 542-544 and 731-TA-1283, 1285, 1287, and 1289-1290 (Final), USITC Pub. 4637 at 35 n.182 (Sept. 2016).

region.[241] The record shows, however, that the domestic industry had substantial unused capacity in every year of the POI, including in 2019, in the Central Southwest region.[242] We also observe that OEMs often imported subject wind towers at ports in Texas more remote from wind project sites than these available domestic facilities, contrary to respondents' argument that subject imports experienced a decisive geographic advantage over these facilities with respect to delivery at least in the Central Southwest region.[243]

GE also argues that the quality of domestically produced wind towers led it to import subject merchandise, but the record reflects that ***.[244] ***.[245]

Finally, we disagree with respondents' assessment that there is no correlation between the increase in imports in 2019 and the industry's performance.[246] The improvement in financial indicators in 2019 relative to 2018 resulted from increased sales volume but the increase was far lower than the substantial increase in apparent U.S. consumption.[247] As

[241] GE's Prehearing Brief at 38-41; Marmen's Prehearing Brief at 2-3, 66-67, Appendix at 47 (Joint Analysis); Kenertec's Prehearing Brief at 9-10.

[242] The industry reported capacity utilization of 70.8 percent in 2019. CR/PR at Table III-4. Further, domestic producers' *** capacity utilization rates, whether calculated on an annual or quarterly basis. *See* Petitioner's Posthearing Brief at 7-9, Exhibit 1 at 11-12 and Exhibit 2. The domestic industry's average capacity utilization for the three facilities in the Central Southwest region was *** percent in 2019, only slightly higher than the *** percent they reported in 2018. Calculated based on data submitted in Commission questionnaires. GE's own calculations confirm that, with the exception of ***, the domestic industry had available capacity in the Central Southwest region. *See* GE's Posthearing Brief, Answers to Questions at 8. With respect to ***.

[243] For instance, subject imports were shipped approximately 600 miles or more to projects in *** and *** and over 400 miles to ***. Petitioner's Posthearing Brief at 8, 13, Exhibit 13, Answers to Questions at 14, 40. Thus, the record shows that geography does not limit competition to the extent that respondents claim when subject imports are sufficiently low-priced. *See* CR/PR at Tables V-7 and V-9 (showing bidding for ***). In addition, as previously noted U.S. producers ship 24.1 percent of their sales between 501 and 1,000 miles, and 14.2 percent over 1,000 miles. CR II-8.

[244] CR/PR at Tables V-2-V-4.

[245] *See* CR/PR at Table V-3; GE's Posthearing Brief, Answers to Questions at 6, 8-9. Similarly, GE continued to purchase from ***. *See* GE's Final Comments at 2-3. Thus, the record does not support GE's argument that quality was the reason it imported from subject sources. GE's questionnaire response suggests that ***. GE's Importer Questionnaire Response at III-15.

[246] Respondents contend that there is no causal link or even correlation between the increase in subject imports in 2019, the industry's conversion price ratio or its finances and that any struggles faced by the domestic tower industry are not due to subject imports. GE's Posthearing Brief at 14; Marmen's Posthearing Brief at 14, Answers to Questions at 70-72.

[247] *See* CR/PR at VI-25. As previously noted, the decline in the domestic industry's conversion price ratio in 2019 was offset by the decline in the conversion cost ratio leading to marginally improved operating results in 2019. *See* CR/PR at VI-25. Thus, the industry's increased output that year enabled it to report somewhat improved financial results in 2019. Further, we observe that the domestic

explained above, the industry's performance would have been materially better if not for the increasing volume of low-priced subject imports.

Given these considerations, the record in the final phase of these investigations indicates that the domestic industry was in a position to supply a materially greater volume of wind towers, even if it could not have necessarily supplied all of the increase in apparent U.S. consumption for wind towers that occurred during 2019.[248]

Further, as a result of significant underselling by subject imports despite substantial increases in apparent U.S. consumption, the domestic industry was unable to pass on increases in costs, as demonstrated by its elevated COGS to net sales ratio and declining effective conversion price ratio during a period of strong demand, particularly in the merchant market, as previously discussed. The increasing volume of subject imports adversely affected the industry's prices, resulting in a cost-price squeeze and reduced financial performance during the latter portion of the POI. Indeed, the domestic industry suffered declines in virtually all of its financial indicators over the POI.

We also have considered the role of factors other than subject imports to ensure that we are not attributing injury from such other factors to subject imports. As discussed above, apparent U.S. consumption declined in 2018 relative to 2017 before recovering strongly in 2019 to a level higher than during 2017.[249] The overall growth in apparent U.S. consumption does not explain the industry's reduced market share and inability to achieve materially greater output, nor its worsening financial performance over the period as a whole.

We have also considered the role of nonsubject imports in the U.S. market. As described earlier, nonsubject imports' share of apparent U.S. consumption decreased from *** percent in 2017 to *** percent in 2018, before increasing to *** percent in 2019.[250] In light of

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industry's conversion price ratio on merchant market sales was *** percent in 2017, *** percent in 2018 and *** percent in 2019. Thus, in the merchant market the steepest decline in the industry's conversion price ratio occurred during 2019. *See* CR/PR at Table VI-5.

[248] We note that domestic industry had substantial excess capacity, including in the Central Southwest, regardless of whether *** is included in industry's total capacity. *See* CR/PR at Table III-4. Calculated based on data submitted in Commission questionnaires. The *** region and not the Central Southwest region where respondents also claim capacity was unavailable. Two other facilities in the Upper Midwest region had excess capacity; Broadwind's facility in Manitowoc, Wisconsin and Ventower's facility in Monroe, Michigan operated at modest capacity utilization rates during 2019. Calculated based on data submitted in Commission questionnaires. In addition, while the *** in 2016.

[248] *See* CR/PR at Table C-1 and C-2.

[249] *See* CR/PR at Table C-1 and C-2.

[250] CR/PR at Table IV-13. Nonsubject imports' share of apparent U.S. consumption in the merchant market also declined overall during the period of investigation, decreasing from *** percent in 2017 to *** percent in 2018, before increasing to *** percent in 2019. CR/PR at Table IV-14.

these considerations and the substantial volumes and substantial increase in volumes of cumulated subject imports and their pervasive underselling, nonsubject imports cannot explain the magnitude of the domestic industry's inability to achieve materially greater output, market share, and revenues in 2019. We therefore find that cumulated subject imports had a significant adverse impact on the domestic industry.

VI. Critical Circumstances

A. Legal Standards

Commerce has made affirmative critical circumstances findings in the antidumping duty investigations with respect to wind towers from Korea and Vietnam and the countervailing duty investigation with respect to imports from Indonesia.[251] Because we have determined that the domestic industry is materially injured by reason of cumulated subject imports from Canada, Indonesia, Korea and Vietnam, we must further determine "whether the imports subject to the affirmative {Commerce critical circumstances} determination{s} . . . are likely to undermine seriously the remedial effect of the antidumping {and/or countervailing duty} order{s} to be issued."[252]

The SAA indicates that the Commission is to determine "whether, by massively increasing imports prior to the effective date of relief, the importers have seriously undermined the remedial effect of the order" and specifically "whether the surge in imports prior to the suspension of liquidation, rather than the failure to provide retroactive relief, is likely to seriously undermine the remedial effect of the order."[253] The legislative history for the critical circumstances provision indicates that the provision was designed "to deter exporters whose merchandise is subject to an investigation from circumventing the intent of the law by increasing their exports to the United States during the period between initiation of an

[251] *Utility Scale Wind Towers from the Republic of Korea: Final Determination of Sales at Less Than Fair Value and Final Affirmative Determination of Critical Circumstances*, 85 Fed. Reg. 40243, 40244 (July 6, 2020); *Utility Scale Wind Towers From the Socialist Republic of Vietnam: Final Determination of Sales at Less Than Fair Value and Final Affirmative Determination of Critical Circumstances*, 85 Fed. Reg. 40226, 40229 (July 6, 2020*); Utility Scale Wind Towers From Indonesia: Final Affirmative Countervailing Duty Determination and Final Affirmative Determination of Critical Circumstances*, 85 Fed. Reg. 40241, 40242 (July 6, 2020).

[252] 19 U.S.C. §§ 1671d(b)(4)(A)(i), 1673d(b)(4)(A)(i); 19 U.S.C. §§ 1671d(b)(4)(A)(ii), 1673d(b)(4)(A)(ii); 19 U.S.C. §§ 1671d(e)(2), 1673d(e)(2).

[253] SAA at 877.

investigation and a preliminary determination by {Commerce}."[254] An affirmative critical circumstances determination by the Commission, in conjunction with an affirmative determination of material injury by reason of subject imports, would normally result in the retroactive imposition of duties for those imports subject to Commerce's affirmative critical circumstances determination for a period 90 days prior to the suspension of liquidation.[255]

The statute provides that, in making this determination, the Commission shall consider, among other factors it considers relevant –

(I) the timing and the volume of the imports,

(II) a rapid increase in inventories of the imports, and

(III) any other circumstances indicating that the remedial effect of the {order} will be seriously undermined.[256]

In considering the timing and volume of subject imports, the Commission's practice is to consider import quantities prior to the filing of the petition with those subsequent to the filing of the petition using monthly statistics on the record regarding those firms for which Commerce has made an affirmative critical circumstance determination.[257]

B. Arguments of the Parties

Petitioner's Arguments. Petitioner argues that an affirmative critical circumstances finding in the countervailing duty investigation with respect to Indonesia is warranted. It asserts that subject imports from Indonesia doubled in the period after the filing of the petition (July 2019-December 2019) compared to January-June 2019.[258] It claims that demand in Indonesia for wind towers remains weak, making further exports to the United States likely. Given the degree of substitutability between subject imports from Indonesia and the domestic like product, the adverse price effects that subject imports have had on the domestic industry,

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[254] *ICC Industries, Inc. v. United States*, 812 F.2d 694, 700 (Fed. Cir. 1987), quoting H.R. Rep. No. 317, 96th Cong., 1st Sess. 63 (1979), *aff'g* 632 F. Supp. 36 (Ct. Int'l Trade 1986).

[255] *See* 19 U.S.C. §§ 1671b(e)(2), 1673b(e)(2).

[256] 19 U.S.C. §§ 1671d(b)(4)(A)(ii), 1673d(b)(4)(A)(ii).

[257] *See Lined Paper School Supplies from China, India, and Indonesia*, Inv. Nos. 701-TA-442- 443, 731-TA-1095- 1097 (Final), USITC Pub. 3884 at 46-48 (Sept. 2006); *Carbazole Violet Pigment from China and India*, Inv. Nos. 701-TA-437 & 731-TA-1060- 1061 (Final), USITC Pub. 3744 at 26 (Dec. 2004); *Certain Frozen Fish Fillets from Vietnam*, Inv. No. 731-TA-1012 (Final), USITC Pub. 3617 at 20-22 (Aug. 2003).

[258] Petitioner's Prehearing Brief at 104-107. Petitioner states that inventories of subject merchandise are not an important source of increased shipments of subject imports because wind towers are made to order. *Id.* at 106.

and the domestic industry's vulnerable condition, petitioner argues that the Commission should make an affirmative finding of critical circumstance. Petitioner does not address critical circumstances with respect to the Korea and Vietnam.[259]

Respondents' Arguments. Respondents argue that the record does not warrant a finding that critical circumstances exist with respect to Korea or Vietnam.[260] CS Wind asserts that subject imports from Vietnam were *** in the six-month period following the filing of the petition than in the six-month period preceding the filing of the petition, and that inventories are not a source of increased shipments of imports in the marketplace as wind towers are made to order. It also states that it did not enter into new agreements with its customers to ship wind towers to the United States in the six months after the petition was filed.[261]

DKSC observes that subject imports from Korea declined in the six months after the petition was filed compared to the previous six months. It asserts that the market share of subject imports from Korea *** over the POI and do not threaten to seriously undermine the U.S. wind tower market.[262]

Vestas likewise requests that the Commission make a negative critical circumstances determination with respect to subject imports from Korea. It notes that importers reported lead times between 155 – 270 days, or 5-9 months, and it maintains that the long lead times and produce-to-order nature of wind towers do not allow importers to increase import volume within a short time period. It also states that its own imports during the post-petition period were ordered before the filing of petition pursuant to supply agreements entered into long ago.[263]

C. Analysis[264]

We first consider the appropriate period for comparison of pre-petition and post-petition levels of the imports subject to the affirmative critical circumstances findings.

[259] Petitioner's Prehearing Brief at 108.

[260] CS Wind's Prehearing Brief at 6-10; CS Wind's Posthearing Brief at 1-2; DKSC's Prehearing Brief at 3-6; Vestas's Prehearing Brief at 23-26. Respondents did not address critical circumstances for subject imports from Indonesia.

[261] CS Wind's Prehearing Brief at 6-7; CS Wind's Posthearing Brief at 1-2.

[262] DKSC's Prehearing Brief at 2-8.

[263] Vestas's Prehearing Brief at 23-26.

[264] Commissioner Kearns and Karpel observe that the statute directs the Commission to consider the following factors in making this determination: "the timing and volume of the imports, a rapid increase in the inventories of the imports, and any other circumstances indicating that the remedial effect of the antidumping order will be seriously undermined." 19 U.S.C. § 1673d(b)(4)(A)(ii). In their analysis, they

While the Commission typically considers six-month periods, it has relied on a shorter comparison period when Commerce's preliminary determination fell within the six months after a petition was filed.[265] Commerce's initial preliminary determinations in its countervailing duty investigations with respect to Indonesia and Vietnam were on December 13, 2019.[266] Because these determinations came during the middle of the sixth month of the post-petition period, we have used five-month comparison periods: February 2019-June 2019 for the pre-petition period and July-November 2019 for the post-petition period for the investigations concerning imports from Indonesia and Vietnam.[267] Because there was no preliminary determination by Commerce in the investigation concerning imports from Korea in the six-month period after the filing of the petitions we have used the six-month periods for the antidumping investigation with respect to imports from Korea: January 2019-June 2019 and July 2019-December 2019.[268]

Indonesia. Imports of wind towers from Indonesia subject to Commerce's affirmative critical circumstances finding in Commerce's countervailing duty investigation were higher at *** towers in the post-petition five month period (February-June 2019) than *** towers in the pre-petition five-month period (July-November 2019), an increase of *** percent.[269] Although the volume of subject imports from Indonesia subject to the affirmative critical circumstances finding is higher in the post-petition period, we note that the volume of *** towers is relatively modest in the context of apparent U.S. consumption of *** towers in 2019.[270] Moreover, wind

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would therefore take into account a number of factors as appropriate to a given investigation (as directed by the statute) and do not necessarily give precedence to the pre- and post-petition subject import volumes. Among the factors they may consider, depending on the facts of the investigation and the parties' arguments, are subject import volumes relative to consumption or production, monthly changes in subject import volume, subject import inventories (both absolute and relative to imports or shipments of imports), purchaser inventories, pricing, and the domestic industry's performance.

[265] In particular, the Commission has used five-month periods in recent investigations where the timing of the first preliminary Commerce determination authorizing the imposition of provisional duties would have served to reduce subject import volume in the sixth month of the post-petition period. *See, e.g., Cold-Rolled Steel Flat Products from China and Japan,* Inv. Nos. 701-TA-541 and 731-TA-1284 and 1286 (Final), USITC Pub. 4619 (July 2016); *Polyethylene Terephthalate (PET) Resin from Canada, China, India, and Oman,* Inv. Nos. 701-TA-531-532 and 731-TA-1270-1273 (Final), USITC Pub. 4604 at 31-32 (Apr. 2016); *Carbon and Certain Steel Wire Rod from China*, Inv. Nos. 701-TA-512, 731-TA-1248 (Final), USITC Pub. 4509 at 25-26 (Jan. 2015) (using five-month periods because preliminary Commerce countervailing duty determination caused reduction of subject import volume in sixth month).

[266] CR/PR at I-2.

[267] CR/PR at Tables IV-4 and IV-6.

[268] *See* CR/PR at I-2.

[269] CR/PR at Table IV-4.

[270] CR/PR at Table IV-4; Table C-1.

towers are made to order and typically already destined for specific customers when they are imported.[271] U.S. importers held no inventories of subject imports from Indonesia either in the five months prior to or after filing of the petition.[272] Lead times for orders of wind towers by importers/purchasers are relatively long: an estimated 155 to 270 days.[273] Consequently, the subject imports entering after the petitions were filed, and before Commerce's preliminary countervailing duty determination regarding Indonesia was issued, were likely ordered well in advance of the petitions being filed.

In light of these considerations and considering the record as a whole, we find that subject imports from Indonesia subject to Commerce's critical circumstances finding in the post-petition period are not likely to undermine seriously the remedial effect of the countervailing duty order. Consequently, we determine that critical circumstances do not exist with respect to subject imports from Indonesia that are covered by Commerce's affirmative critical circumstances finding in the countervailing duty investigation.

Korea. Imports of wind towers from Korea subject to Commerce's affirmative critical circumstances finding in Commerce's antidumping duty investigation were lower at *** towers in the post-petition six month period (July 2019-December 2019) than the *** towers in the pre-petition six-month period (January 2019-June 2019), a decrease of *** percent.[274]

As explained above, wind towers are made to order and typically already destined for specific customers when they are imported.[275] U.S. importers held no inventories of subject imports from Korea either in the six months prior to or after filing of the petition.[276] Lead times for orders of wind towers by importers/purchasers are relatively long: an estimated 155 to 270 days.[277] Consequently, the subject imports entering after the petitions were filed, and before Commerce's preliminary determination regarding imports from Korea was issued, were likely ordered well in advance of the petitions being filed.

In light of the decrease in subject imports from Korea in the post-petition period and considering the record as a whole, we find that the subject imports from Korea subject to Commerce's critical circumstances finding in the post-petition period are not likely to undermine seriously the remedial effect of the antidumping duty order. Consequently, we determine that critical circumstances do not exist with respect to subject imports from Korea

[271] CR/PR at Table II-24.
[272] CR/PR at Table VI-4.
[273] CR/PR at II-24.
[274] CR/PR at Table IV-5.
[275] CR/PR at II-24.
[276] CR/PR at IV-4.
[277] CR/PR at II-24.

that are covered by Commerce's affirmative critical circumstances finding in the antidumping duty investigation.

Vietnam. Imports of wind towers from Vietnam subject to Commerce's affirmative critical circumstances finding in Commerce's antidumping duty investigation were lower at *** towers in the post-petition five-month period (July-November 2019) than *** towers in the pre-petition five-month period (February-June 2019), a decrease of *** percent.[278]

As explained above, wind towers are made to order and typically already destined for specific customers when they are imported.[279] U.S. importers held no inventories of subject imports from Vietnam either in the five months prior to or after filing of the petition.[280] Lead times for orders of wind towers by importers/purchasers are relatively long: an estimated 155 to 270 days.[281] Consequently, the subject imports entering after the petitions were filed, and before Commerce's preliminary countervailing duty determination regarding imports from Vietnam was issued, were likely ordered well in advance of the petitions being filed.

In light of the decrease in subject imports from Vietnam in the post-petition period and taking the record as a whole, we find that subject imports from Vietnam subject to Commerce's critical circumstances finding in the post-petition period are not likely to undermine seriously the remedial effect of the antidumping duty order. Consequently, we determine that critical circumstances do not exist with respect to subject imports from Vietnam that are covered by Commerce's affirmative critical circumstances finding in the antidumping duty investigation.

VII. Conclusion

For the reasons stated above, we determine that an industry in the United States is materially injured by reason of cumulated subject imports of wind towers from Canada, Indonesia, Korea, and Vietnam found by Commerce to be sold in the United States at LTFV and subsidized by the governments of Canada, Indonesia, and Vietnam. We also find that critical circumstances do not exist with respect to imports of wind towers from Indonesia, Korea, and Vietnam subject to Commerce's affirmative critical circumstances determinations.

[278] CR/PR at Table IV-6.
[279] CR/PR at II-24.
[280] CR/PR at IV-6.
[281] CR/PR at II-24.

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 Wind Tower Trade Coalition (Arcosa Wind Towers, Inc. (Dallas, Texas) and Broadwind Towers, Inc. (Manitowoc, Wisconsin)), on July 9, 2019, alleging that an industry in the United States by reason of imports of utility scale wind towers ("wind towers") from Canada, Indonesia, Korea, and Vietnam that are sold in the United States at less than fair value ("LTFV") and subsidized by the Governments of Canada, Indonesia, and Vietnam. The following tabulation provides information relating to the background of these investigations.[1] [2]

[1] Pertinent *Federal Register* notices are referenced in appendix A, and may be found at the Commission's website (www.usitc.gov).

[2] Appendix B presents the witnesses participating in the Commission's hearing.

Effective date	Action
July 9, 2019	Petitions filed with Commerce and the Commission; institution of Commission investigations (84 FR 33784, July 15, 2019)
July 29, 2019	Commerce's notice of initiation of less-than-fair-value investigations (84 FR 37992, August 5, 2019)
July 29, 2019	Commerce's notice of initiation of countervailing duty investigations (84 FR 38216, August 6, 2019)
August 23, 2019	Commission's preliminary determinations (84 FR 45171, August 28, 2019)
December 13, 2019	Commerce's preliminary countervailing duty determinations for utility scale wind towers from Canada (84 FR 68126, December 13, 2019), Indonesia (84 FR 68109, December 13, 2019), and Vietnam (84 FR 68104, December 13, 2019)
February 14, 2020	Commerce's preliminary antidumping duty determinations for utility scale wind towers from Canada (85 FR 8562, February 14, 2020), Indonesia (85 FR 8558, February 14, 2020), Korea (85 FR 8560, February 14, 2020) and Vietnam (85 FR 8565, February 14, 2020)
February 27, 2020	Commerce's postponement of its final antidumping duty determination of utility scale wind towers from Vietnam (85 FR 11341, February 27, 2020)
February 14, 2020	Scheduling of final phase of Commission investigations (85 FR 16127, March 20, 2020)
June 25, 2020	Commission's hearing
July 6, 2020	Commerce's final antidumping duty determinations for utility scale wind towers from Canada (85 FR 40239), Indonesia (85 FR 40231), Korea (85 FR 40243) and Vietnam (85 FR 40226), and final countervailing duty determinations for utility scale wind towers from Canada (85 FR 40245), Indonesia (85 FR 40241), and Vietnam (85 FR 40229)
July 30, 2020	Commission's vote
August 12, 2020	Commission's views

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--

> *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--[3]

> *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.*

[3] 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—[4]

(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, subsidy/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.[5] 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

Wind towers are vertical support components of utility scale wind turbines used in electrical power generation projects. The leading U.S. producers of wind towers are (in alphabetical order) Arcosa, Marmen, and Vestas, while leading producers of wind towers outside the United States include Marmen, Inc. of Canada, PT Kenertec Power System of Indonesia, Dongkuk S&C Co., Ltd. of Korea, and CS Wind of Vietnam. Four wind-turbine original equipment manufacturers ("OEMs") *** that import/purchase wind towers accounted for nearly all wind turbine installations in 2019. The leading U.S. importers/purchasers of wind towers from Canada in 2019 were ***. The leading U.S. importers/purchasers of wind towers from Indonesia in 2019 were ***. The leading U.S. importers/purchasers of wind towers from Korea in 2019 were ***. The leading U.S. importers/purchasers of wind towers from Vietnam in 2019 was ***. Leading importers of wind towers from nonsubject countries (primarily Mexico, Spain, and Italy) include ***.

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

[5] Due to the overlap of firms that import and purchase wind towers, the Commission issued a single combined importer/purchaser questionnaire for the final phase of these investigations. In Parts II and V, these firms are referred to as "importer(s)/purchaser(s)." Part IV, which focuses on U.S. imports, refers to all firms as "importers," whether or not they also purchase wind towers.

Apparent U.S. consumption of wind towers totaled approximately *** units ($***) in 2019. Currently, six firms are known to produce wind towers in the United States. U.S. producers' U.S. shipments of wind towers totaled 2,964 units ($995 million) in 2019 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. imports from subject sources totaled 1,581 units ($496 million) in 2019 and U.S. shipments of such imports accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. imports from nonsubject sources totaled *** units ($***) in 2019 and U.S. shipments of such imports 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 these investigations is presented in appendix C, tables C-1 (total market) and C-2 (merchant market). Except as noted, U.S. industry data are based on questionnaire responses of six firms that accounted for all known U.S. production of wind towers during 2019. U.S. imports are based on data collected in Commission-issued questionnaires from seven firms that accounted for the vast majority of subject imports in 2019. Foreign producer data are based on the questionnaire responses of six firms that account for all known production in Canada, Indonesia, Korea, and Vietnam.

Previous and related investigations

Wind towers have been the subject of prior related antidumping and countervailing duty investigations. The prior investigations resulted from petitions filed on December 29, 2011 with Commerce and the Commission by Broadwind Towers, Inc., Manitowoc, Wisconsin; DMI Industries, Fargo, North Dakota; Katana Summit LLC, Columbus, Nebraska; and Trinity Structural Towers, Inc., Dallas, Texas alleging that the U.S. industry was materially injured and threatened with material injury by reason of subsidized and LTFV imports from China, and LTFV imports from Vietnam. On December 26, 2012, Commerce published in the *Federal Register* its notice of determinations that imports of wind towers from China and Vietnam were being sold at LTFV and were subsidized by the government of China.[6] The Commission determined on February 8, 2013 that the domestic industry was materially injured or threatened with material injury by

[6] *Utility Scale Wind Towers From the People's Republic of China: Final Determination of Sales at Less Than Fair Value*, 77 FR 75992, December 26, 2012; *Utility Scale Wind Towers From the Socialist Republic of Vietnam: Final Determination of Sales at Less Than Fair Value*, 77 FR 75984, December 26, 2012; *Utility Scale Wind Towers From the People's Republic of China: Final Affirmative Countervailing Duty Determination,* 77 FR 75978, December 26, 2012.

reason of LTFV imports of wind towers from China and Vietnam and subsidized imports of wind towers from China.[7] [8] On February 15, 2013, Commerce issued its antidumping duty orders on wind towers from China and Vietnam with the final weighted-average dumping margins ranging from 44.99 percent to 70.63 percent for China and 51.54 percent to 58.54 percent for Vietnam.[9] In the course of litigation at the Court of International Trade, Commerce published a *Notice of Court Decision Not in Harmony with the Final Determination* and revised CS Wind Group's dumping margin to 17.02 percent, effective May 21, 2015.[10] Commerce subsequently concluded its first administrative review of the Vietnam antidumping duty order and revised CS Wind Group's margin a second time, finding it to be de minimis, effective September 15, 2015. Following further litigation at the Court of Appeals for the Federal Circuit, on March 29, 2017, Commerce published a second *Notice of Court Decision Not in Harmony with the Final Determination*, this time excluding merchandise that is produced and exported by CS Wind Group from the antidumping duty order.[11] Table I-1 illustrates the revised antidumping duty margin from the original investigation and the first five-year review margin for Vietnam.

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[7] *Utility Scale Wind Towers From China and Vietnam*, 78 FR 10210, February 13, 2013. Chairman Irving A. Williamson and Commissioner Shara L. Aranoff determined that an industry in the United States was materially injured by reason of imports of wind towers from China and Vietnam. Commissioner Dean A. Pinkert determined that an industry in the United States was threatened with material injury by reason of imports from China and Vietnam of wind towers. He further determined that he would not have found material injury but for the suspension of liquidation. Ibid.

[8] Siemens Energy, Inc. ("Siemens"), a U.S. importer of wind towers, challenged the Commission's determinations that the domestic industry was materially injured or threatened with material injury by reason of subject imports before the U.S. Court of International Trade ("CIT"). The CIT rejected Siemens's arguments and affirmed the Commission's determinations in all respects. *Siemens Energy, Inc. v. United States*, 992 F. Supp. 2d 315 (Ct. Int'l Trade 2014). Siemens subsequently appealed the decision of the CIT to the U.S. Court of Appeals for the Federal Circuit. The Court of Appeals again rejected Siemens's challenges to the Commission's determinations and affirmed the CIT's decision. *Siemens Energy, Inc. v. United States*, 806 F.3d 1367 (Fed. Cir. 2015).

[9] *Utility Scale Wind Towers From the People's Republic of China: Antidumping Duty Order*, 78 FR 11146, February 15, 2013; *Utility Scale Wind Towers From the Socialist Republic of Vietnam: Amended Final Determination of Sales at Less Than Fair Value and Antidumping Duty Order,* 78 FR 11150, February 15, 2013.

[10] *Utility Scale Wind Towers From the Socialist Republic of Vietnam: Notice of Court Decision Not in Harmony With the Final Determination of Less Than Fair Value Investigation and Notice of Amended Final Determination of Investigation*, 80 FR 30211, May 27, 2015.

[11] *Utility Scale Wind Towers From the Socialist Republic of Vietnam: Notice of Court Decision Not in Harmony With the Final Determination of Less Than Fair Value Investigation and Notice of Amended Final Determination of Investigation,* 82 FR 15493, March 26, 2017. *See also* Commerce's Issues and Decision Memorandum for the Expedited First Sunset Reviews of the Antidumping Duty Orders on Utility Scale Wind Towers from the People's Republic of China and the Socialist Republic of Vietnam, April 26, 2018, p. 5.

Table I-1
Wind towers: Commerce's original, revised, and first five-year dumping margins for producers/exporters in Vietnam

Producer/exporter	Original margin (percent)	First five-year review margin (percent)
The CS Wind Group[1]	58.54 → 17.02 → 0.00	--
Vietnam-Wide Entity[2]	58.54	Up to 58.54

[1] The CS Wind Group consists of CS Wind Vietnam Co., Ltd. and CS Wind Corporation.
[2] The Vietnam-Wide Entity includes Vina-Halla Heavy Industries, Ltd.

Source: 78 FR 11150, February 15, 2013; 82 FR 15493, March 29, 2017; and 83 FR 19220, May 2, 2018.

In the most recent five-year review, the Commission determined that revocation of the countervailing duty order on utility scale wind towers from China and the antidumping duty orders on utility scale wind towers from China and Vietnam would be likely to lead to continuation or recurrence of material injury.[12]

[12] *Utility Scale Wind Towers from China and Vietnam*, *Investigation Nos. 701-TA-486 and 731-TA-1195-1196 (Review)*, USITC Publication 4888, April 2019.

Nature and extent of subsidies and sales at LTFV

Subsidies

On July 6, 2020, Commerce published notices in the *Federal Register* of its final determinations of countervailable subsidies for producers and exporters of wind towers from Canada,[13] Indonesia,[14] and Vietnam.[15] Tables I-2 through I-4 present Commerce's findings of subsidization of wind towers in Canada, Indonesia, and Vietnam.

Table I-2
Wind towers: Commerce's final subsidy determination with respect to imports from Canada

Entity	Final countervailable subsidy margin (percent)
Marmen Inc., Marmen Énergie Inc., and Gestion Marmen Inc.	1.18
All others	1.18

Note.-- Commerce determined the following programs to be countervailable with respect to Canada: Federal Accelerated Capital Cost Allowance for Class 29 Assets, Atlantic Investment Tax Credit, Additional Depreciation for Class 1 Assets, Tax Credit for the Acquisition of Manufacturing and Processing Equipment in Québec, Québec Capital Cost Allowance for Property Used in Manufacturing and Processing, Revenue Québec – Additional Depreciation for Class 1a Assets/Additional Depreciation for Building (Class 1), Revenue Québec - Tax Credit for On-The-Job Training, and Revenue Québec – Tax Credit to Promote Employment in Gaspesie and Certain Maritime Regions of Québec**.** See Issues and Decision Memorandum for the Final Determination of the Countervailing Duty Investigation of Utility Scale Wind Towers from Canada, pp. 5-7.

Source: 85 FR 40245, July 6, 2020.

[13] 85 FR 40245, July 6, 2020.
[14] 85 FR 40241, July 6, 2020.
[15] 85 FR 40229, July 6, 2020.

Table I-3
Wind towers: Commerce's final subsidy determination with respect to imports from Indonesia

Entity	Final countervailable subsidy margin (percent)
PT Kenertec Power System	5.90
All others	5.90

Note.-- Commerce determined the following programs to be countervailable with respect to Indonesia: Electricity for Less Than Adequate Remuneration ("LTAR"), Exemption from Import Income Tax Withholding for Companies in Bonded Zones, and Upstream Subsidization of Cut-to-Length Steel Plate ("CTL Plate). While preliminarily determined to be countervailable, provision of CTL plate for LTAR was determined not to be countervailable in Commerce's final determination. See Issues and Decision Memorandum for the Final Determination of the Countervailing Duty Investigation of Utility Scale Wind Towers from Indonesia, pp. 7-8.

Source: 85 FR 40241, July 6, 2020.

Table I-4
Wind towers: Commerce's final subsidy determination with respect to imports from Vietnam

Entity	Final countervailable subsidy margin (percent)
CS Wind Vietnam Co., Ltd.	2.84
All others	2.84

Note.-- Commerce determined the following programs to be countervailable with respect to Vietnam: Income Tax Preferences under Chapter V of Decree 24, Import Duty Exemptions on Imports of Spare Parts and Accessories in Industrial Zones, and Import Duty Exemptions on Imports of Raw Materials for Exporting Goods. See Issues and Decision Memorandum for the Preliminary Determination of the Countervailing Duty Investigation of Utility Scale Wind Towers from Vietnam, pp. 7-12.

Source: 85 FR 40229, July 6, 2020.

Sales at LTFV

On July 6, 2020, Commerce published a notice in the *Federal Register* of its final determination of sales at LTFV with respect to imports from Canada,[16] Indonesia,[17] Korea,[18] and Vietnam.[19] Tables I-5 through I-8 present Commerce's dumping margins with respect to imports of product from Canada, Indonesia, Korea, and Vietnam.

[16] 85 FR 40239, July 6, 2020.
[17] 85 FR 40231, July 6, 2020.
[18] 85 FR 40243, July 6, 2020.
[19] 85 FR 40226, July 6, 2020.

Table I-5
Wind towers: Commerce's final weighted-average LTFV margins with respect to imports from Canada

Exporter	Producer	Final dumping margin (percent)
Marmen Inc./Marmen Énergie, Inc.	Marmen Inc./Marmen Énergie, Inc.	4.94
All others		4.94

Source: 85 FR 40239, July 6, 2020.

Table I-6
Wind towers: Commerce's final weighted-average LTFV margins with respect to imports from Indonesia

Exporter	Producer	Final dumping margin (percent)
PT Kenertec Power System	PT Kenertec Power System	8.53
All others		8.53

Source: 85 FR 40231, July 6, 2020.

Table I-7
Wind towers: Commerce's final weighted-average LTFV margins with respect to imports from Korea

Exporter	Producer	Final dumping margin (percent)
Dongkuk S&C Co., Ltd.	Dongkuk S&C Co., Ltd.	5.41
All others		5.41

Source: 85 FR 40243, July 6, 2020.

Table I-8
Wind towers: Commerce's final weighted-average LTFV margins with respect to imports from Vietnam

Exporter	Producer	Final dumping margin (percent)
CS Wind Vietnam Co., Ltd.	CS Wind Vietnam Co., Ltd.	65.96

Source: 85 FR 40226, July 6, 2020.

The subject merchandise

Commerce's scope

In the current proceeding, Commerce has defined the scope as follows:[20]

[20] 85 FR 40239, July 6, 2020; 85 FR 40243, July 6, 2020; 85 FR 40226, July 6, 2020; 85 FR 40231, July 6, 2020; 85 FR 40241, July 6, 2020; 85 FR 40245, July 6, 2020; and 85 FR 40229, July 6, 2020.

The merchandise covered by this investigation consists of certain wind towers, whether or not tapered, and sections thereof. Certain wind towers support the nacelle and rotor blades in a wind turbine with a minimum rated electrical power generation capacity in excess of 100 kilowatts and with a minimum height of 50 meters measured from the base of the tower to the bottom of the nacelle (i.e., where the top of the tower and nacelle are joined) when fully assembled.

A wind tower section consists of, at a minimum, multiple steel plates rolled into cylindrical or conical shapes and welded together (or otherwise attached) to form a steel shell, regardless of coating, end-finish, painting, treatment, or method of manufacture, and with or without flanges, doors, or internal or external components (e.g., flooring/decking, ladders, lifts, electrical buss boxes, electrical cabling, conduit, cable harness for nacelle generator, interior lighting, tool and storage lockers) attached to the wind tower section. Several wind tower sections are normally required to form a completed wind tower.

Wind towers and sections thereof are included within the scope whether or not they are joined with non-subject merchandise, such as nacelles or rotor blades, and whether or not they have internal or external components attached to the subject merchandise.

Specifically excluded from the scope are nacelles and rotor blades, regardless of whether they are attached to the wind tower. Also excluded are any internal or external components which are not attached to the wind towers or sections thereof, unless those components are shipped with the tower sections.

Further, excluded from the scope of the antidumping duty investigations are any products covered by the existing antidumping duty order on utility scale wind towers from the Socialist Republic of Vietnam. See Utility Scale Wind Towers from the Socialist Republic of Vietnam: Amended Final Determination of Sales at Less Than Fair Value and Antidumping Duty Order, 78 FR 11150 (February 15, 2013).

Merchandise covered by this investigation is currently classified in the Harmonized Tariff Schedule of the United States (HTSUS) under subheading 7308.20.0020 or 8502.31.0000. Wind towers of iron or steel are classified under HTSUS 7308.20.0020 when imported separately as a tower or tower section(s). Wind towers may be classified under HTSUS 8502.31.0000 when imported as combination goods with a wind turbine (i.e., accompanying nacelles and/or rotor blades). While the 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 Commerce, information available to the Commission indicates that the merchandise subject to these reviews is imported under statistical reporting numbers 7308.20.0020[21] or 8502.31.0000[22] of the *Harmonized Tariff Schedule of the United States* ("*HTSUS*" or "HTS").[23] HTS subheading 7308.20.00 has a column 1-general duty rate of "Free" while HTS subheading 8502.31.00 has a column 1-general duty rate of 2.5 percent ad valorem. This subheading also has a column 1-special duty rate of "Free" for subject merchandise originating in Canada under the United States-Mexico-Canada Agreement ("USMCA"), in Korea under the United States-Korea Free Trade Agreement ("UKFTA"), and in Indonesia (but not Vietnam) under the Generalized System of Preferences ("GSP") Program.[24] Decisions on the tariff classification and treatment of imported goods are within the authority of U.S. Customs and Border Protection.

Section 301 proceedings

Wind towers entering the United States under HTS subheading 7308.20.00, when imported either as a tower or tower sections alone, were included in the Office of the United States Trade Representative's ("USTR's") second enumeration ("Tranche 2") of products originating in China that became subject to the additional 25 percent ad valorem duties (annexes A and C of 83 FR 40823), since August 23, 2018,[25] pursuant to Section 301 of the *Trade*

[21] Wind towers of iron or steel are described in HTSUS 7308.20.0020 when imported separately as a tower or tower section(s). U.S. Customs and Border Protection ("CBP"), "The Tariff Classification of Steel Wind Tower Sections from South Korea," Customs Ruling N207518, March 22, 2012.

[22] Wind towers are also described in HTSUS 8502.31.0000 when imported as a combination of goods with a wind turbine (i.e., accompanying nacelles and/or rotor blades) as wind-powered electric generating sets. CBP, "The Tariff Classification of a Wind Powered Generating Set from Germany," Customs Ruling N302464, February 26, 2019.

[23] Both HTS statistical reporting numbers include other products in addition to wind turbine towers.

[24] *HTSUS (2020) Revision 14*, USITC publication 5088, July 2020, pp. 73-24, 85-12. See also Change Record; HTS General Note 3(c), pp. 6 to 7; General Note 4(a), pp. 11 to 12; General Note 11, pp. 26 to 27; General Note 12, p. 162; General Note 33, p. 818.

Vietnam is not included among the designated beneficiary developing country for purposes of the GSP program. HTS General Note 4(a), pp. 11 to 12.

[25] Tranche 2 covered 279 tariff subheadings, with an approximate annual trade value of $16 billion. 83 FR 40823, August 16, 2018.

Act of 1974 ("*Trade Act*").[26] [27] See also U.S. notes 20(c) and 20(d) to subchapter III of HTS chapter 99.[28] Wind towers entering the United States under HTS subheading 8502.31.00, when imported as part of a wind-powered electric generating sets (with nacelles and rotor hubs and blades), were included in USTR's first enumeration ("Tranche 1") of products originating in China that became subject to the additional 25 percent ad valorem duties (annexes A and B of 83 FR 28710), since July 6, 2018,[29] [30] pursuant to Section 301 of the *Trade Act*. See also U.S. notes 20(a) and 20(b), subchapter III of chapter 99.[31] Effective July 1, 2020,[32] no exclusions from these additional duties have been granted for either wind towers[33] or for wind-powered electric generating sets[34] originating in China.

In addition, the raw materials for manufacturing wind towers— certain flat-rolled steel mill products, such as cut-to-length plate, classifiable under the HTS subheadings of chapter 72— were included in the first list to the fourth enumeration ("List 1 to Tranche 4") of the products originating in China that became subject to the additional 10 percent ad valorem duties (Annexes A and B to 84 FR 43304), on or after September 1, 2019,[35] pursuant to Section

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[26] Section 301 of the Trade Act (19 U.S.C. § 2411) authorizes USTR, at the direction of the President, to take appropriate action to respond to a foreign country's unfair trade practices. On August 18, 2017, USTR initiated an investigation into certain acts, policies, and practices of the Government of China related to technology transfer, intellectual property, and innovation. 82 FR 40213, August 24, 2017.

On April 6, 2018, USTR published its determination that the acts, policies, and practices of China under investigation are unreasonable or discriminatory and burden or restrict U.S. commerce, and are thus actionable under section 301(b) of the Trade Act. 83 FR 14906, April 6, 2018.

[27] USTR proposed raising this additional duty from 25 percent to 30 percent on such products imported from China, on or after October 1, 2019 (Annex B – (List 2 - $16 Billion Action), Part 1, of 84 FR 46212). 84 FR 46212, September 3, 2019.

[28] *HTSUS (2020) Revision 14*, USITC publication 5088, July 2020, pp. 99-III-20 to 99-III-22, 99-III-204.

[29] Tranche 1 covered 818 tariff subheadings, with an approximate annual trade value of $34 billion. 83 FR 28710, June 20, 2018.

[30] USTR proposed raising this additional duty from 25 percent to 30 percent on such products imported from China, on or after October 1, 2019 (Annex B – (List 1 - $34 Billion Action), Part 1, of 84 FR 46212). 84 FR 46212, September 3, 2019.

[31] *HTSUS (2020) Revision 14*, USITC publication 5088, July 2020, pp. 99-III-15 to 99-III-16, 99-III-18, 99-III-204.

[32] USITC, "About Harmonized Tariff Schedule," https://www.usitc.gov/harmonized_tariff_information, retrieved July 2, 2020.

[33] See also U.S. notes 20(o), 20(v), and 20(y) to subchapter III of HTS chapter 99. *HTSUS (2020) Revision 14*, USITC publication 5088, July 2020, pp. 99-III-64 to 99-III-65, 99-III-103, 99-III-105, 99-III-115 to 99-III-116, 99-III-206 to 99-III-207.

[34] See also U.S. notes 20(h), 20(i), 20(j), 20(k), 20(m), 20(n), 20(q), 20(x), and 20(ccc) to subchapter III of HTS chapter 99. *HTSUS (2020) Revision 14*, USITC publication 5088, July 2020, pp. 99-III-47 to 99-III-53, 99-III-55, 99-III-57, 99-III-59, 99-III-63, 99-III-68, 99-III-78, 99-III-181, 99-III-205 to 99-III-207, 99-III-210.

[35] 84 FR 43304, August 20, 2019.

301 of the *Trade Act*, which was subsequently increased to 15 percent while retaining the same effective date.[36] Effective February 14, 2020, the 15 percent duty was reduced to 7.5 percent for the products enumerated on List 1 to Tranche 4.[37] See also U.S. notes 20(r), and 20(s) to subchapter III of HTS chapter 99.[38] These duties are in addition to the existing Section 232 duties on steel imports. Effective July 1, 2020,[39] no exclusions from these additional duties have been granted for flat-rolled steel[40] originating in China.

Section 232 proclamations

The flat-rolled steel mill products, classifiable under the HTS headings of chapter 72, for manufacturing wind towers were included in the enumeration of iron and steel articles (imported on or after March 23, 2018) that became subject to the additional 25 percent ad valorem Section 232 duties.[41] At this time, imports of flat-rolled steel mill products originating in Australia, Canada, and Mexico are exempt from duties or quota limits; imports of flat-rolled steel mill products originating in Argentina, Brazil, and Korea are exempt from duties but instead are subject to quota limits; and imports of flat-rolled steel mill products originating in all other countries are subject to the 25 percent additional duties.[42] See U.S. notes 16(a), 16(b),

[36] 84 FR 45821, August 30, 2019.

[37] 85 FR 3741, January 22, 2020.

[38] *HTSUS (2020) Revision 14*, USITC publication 5088, July 2020, pp. 99-III-83 to 99-III-85, 99-III-94 to 99-III-95, 99-III-206.

[39] USITC, "About Harmonized Tariff Schedule," https://www.usitc.gov/harmonized_tariff_information, retrieved July 2, 2020.

[40] See also U.S. notes 20(rr), 20(uu), 20(ww), 20(zz), and 20(bbb) to subchapter III of HTS chapter 99. *HTSUS (2020) Revision 14*, USITC publication 5088, July 2020, pp. 99-III-144, 99-III-148, 99-III-159, 99-III-174, 99-III-179 to 99-III-180, 99-III-208 to 99-III-209.

[41] Section 232 of the *Trade Expansion Act of 1962*, as amended (19 U.S.C. 1862) authorizes the President, on advice of the Secretary of Commerce, to adjust the imports of an article and its derivatives that are being imported into the United States in such quantities or under such circumstances as to threaten to impair the national security. Imports of steel mill products originating in Canada and Mexico were initially exempted from these duties, effective March 23, 2018. *Adjusting Imports of Steel Into the United States*, Presidential Proclamation 9705, March 8, 2018, 83 FR 11625, March 15, 2018.

[42] The President also issued subsequent Proclamations to exempt or adjust these duties for selected U.S. trade partners:

- Presidential Proclamation 9711, March 22, 2018, 83 FR 13361, March 28, 2018, exempted iron and steel mill products originating in Argentina, Australia, Brazil, Canada, the European Union ("EU") member countries, Korea, and Mexico, effective March 23, 2018.
- Presidential Proclamation 9740, April 30, 2018, 83 FR 20683, May 7, 2018, continued the duty exemptions for Argentina, Australia, Brazil, but with annual import quota limits on iron and steel mill products originating in Korea, effective May 1, 2018; and did not continue the duty

and 16(e) in subchapter III of HTS chapter 99.[43] Imported wind towers are not covered by these additional duties.

The product

Description and applications

Wind towers are a component of wind turbines. Wind turbines, whether designed for onshore or offshore electric-power generation,[44] consist of three main components-- the nacelle, rotor, and tower. Wind turbines convert the energy from wind to electrical energy. The nacelle contains the wind turbine's main power-generating components (i.e., the gearbox, low- and high-speed shafts, generator, controller, and brake), while the horizontally mounted rotor typically consists of three blades (of aluminum or composite fiber) attached to the hub.[45] The nacelle is mounted on top of the tower, which is typically of tubular-shaped steel for utility-scale wind turbines (figure I-1).

exemptions on iron and steel mill products originating in Canada, Mexico, and the EU member countries, effective June 1, 2018.

- Presidential Proclamation 9759, May 31, 2018, 83 FR 25857, June 5, 2018, continued the duty exemptions but with annual import quota limits on iron and steel mill products originating in Argentina, Brazil, and Korea, effective June 1, 2018.
- Presidential Proclamation 9772, August 10, 2018, 83 FR 40429, August 15, 2018, continued the duty exemptions on iron and steel mill products originating in Australia, and continued the duty exemptions with annual import quota limits on iron and steel mill products originating in Argentina, Brazil, and Korea, effective June 1, 2018; but doubled the duty rate to 50 percent on such imported products originating in Turkey, effective August 13, 2018.
- Presidential Proclamation 9886, May 16, 2019, 84 FR 23421, May 21, 2019, restored the original additional duty rate of 25 percent on steel mill products originating from Turkey, effective May 21, 2019.
- Presidential Proclamation 9894, May 19, 2019, 84 FR 23987, May 23, 2019, restored the duty exemptions on steel mill products originating in Canada and Mexico, effective May 20, 2019.

[43] *HTSUS (2020) Revision 14*, USITC publication 5088, July 2020, pp. 99-III-5 to 99-III-7, 99-III-195 to 99-III-197, 99-III-203.

[44] According to Petitioners, these investigations include wind towers for both onshore and offshore utility-scale wind turbines. Domestic producers typically manufacture wind towers for onshore wind turbines. Although the offshore market is small relative to the onshore market, Petitioners also reported being requested to provide price quotes for offshore wind towers. Further, according to Petitioners, the production process is nearly the same for both onshore and offshore wind towers. Petition, p. 7, fn. 16; p. 8.

[45] Petition, pp. 7-8; exh. I-11: Office of Energy Efficiency and Renewable Energy, *The Inside of a Wind Turbine*, pp. 447-448.

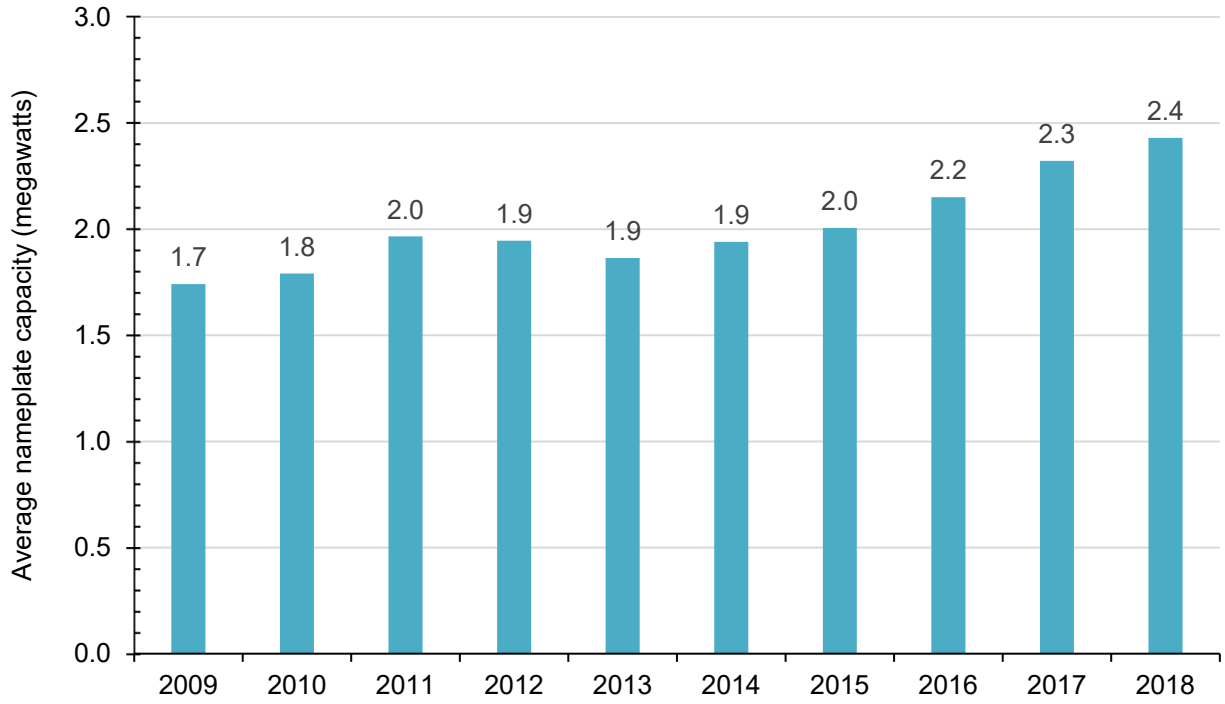
Figure I-1
Wind towers: Utility-scale wind turbine

Source: U.S. Department of Energy, National Renewable Energy Laboratory ("DOE/NREL"), credit: Dennis Schroeder.

Wind turbines have capacities ranging from less than 1 kilowatt ("kW") to several megawatts ("MW," equivalent to 1,000 kW). Utility-scale wind turbines are considered to be those with a capacity exceeding 100 kW.[46] Utility-scale wind turbine capacities have increased over time, with the average capacity of a wind turbine installed in the United States increasing from 1.74 MW in 2009 to 2.4 MW in 2018 (figure I-2).

[46] U.S. Department of Energy ("USDOE"), Wind Energy Technologies Office ("WETO"), WINDExchange, "Utility-Scale Wind Energy," no date, https://windexchange.energy.gov/markets/utility-scale, retrieved August 7, 2019.

Figure I-2
Wind towers: Average nameplate capacity of wind turbines installed in the United States, 2009–18



Source: Wiser, Ryan and Mark Bolinger, *2018 Wind Technologies Market Report*, U.S. Department of Energy ("USDOE"), Office of Energy Efficiency and Renewable Energy ("OEERE"), August 2019, data file, https://emp.lbl.gov/windtechnologies-market-report, retrieved May 4, 2020.

Wind turbines can be installed individually or as part of a larger wind project (also referred to as a "wind farm"). Favorable geographic locations for building wind projects include "tops of smooth, rounded hills; open plains and water; and mountain gaps that funnel and intensify wind" and sites "at higher elevations."[47] Installations of wind turbines for electric-power utilities and independent power producers[48] can be a single turbine, but more commonly range from several turbines to more than 100 turbines. Wind projects and wind turbines, including towers, have a life expectancy of at least 20 years.[49]

[47] GE's prehearing brief, p. 6: exh. 2: U.S. Energy Information Administration, Wind Explained: Where Wind Power is Harnessed, March 24, 2020, p. 1.

[48] An independent power producer is an entity that primarily produces electric power for sale on the wholesale market. It is not a utility, does not own electricity-transmission lines, and does not have a designated service area.

[49] Hearing transcript, p. 155 (Choy).

Utility-scale wind turbines generally use tubular steel towers that consist of multiple (base, one or more mid, and top) sections[50] that are assembled on a foundation at the wind project site, with the complete tower height generally ranging from 60 meters (197 feet) to more than 100 meters (328 feet), as measured from the base of the tower to the hub ("hub height"). The base of the tower (figure I-3) can be up to 4.5 meters (15 feet) in diameter, but varies with tower size, as smaller towers tend to have a smaller-diameter base. The tower typically is tapered so that the diameter at the top is smaller than the diameter at the base. The weight of a complete tower can range from 100 short tons to more than 300 short tons, depending on the height and steel gauge (thickness).[51] At the base of the tower there is a steel door that allows for entry into the tower, inside of which are the tower's internal mechanical and electrical fittings ("internals") such as platforms, ladders, lighting, lifts (elevators), electrical-cable harnesses, storage lockers, and other accessories.[52] For the typical structures and internals for each tower section, see figure I-4.

Figure I-3
Wind towers: Installed wind turbines

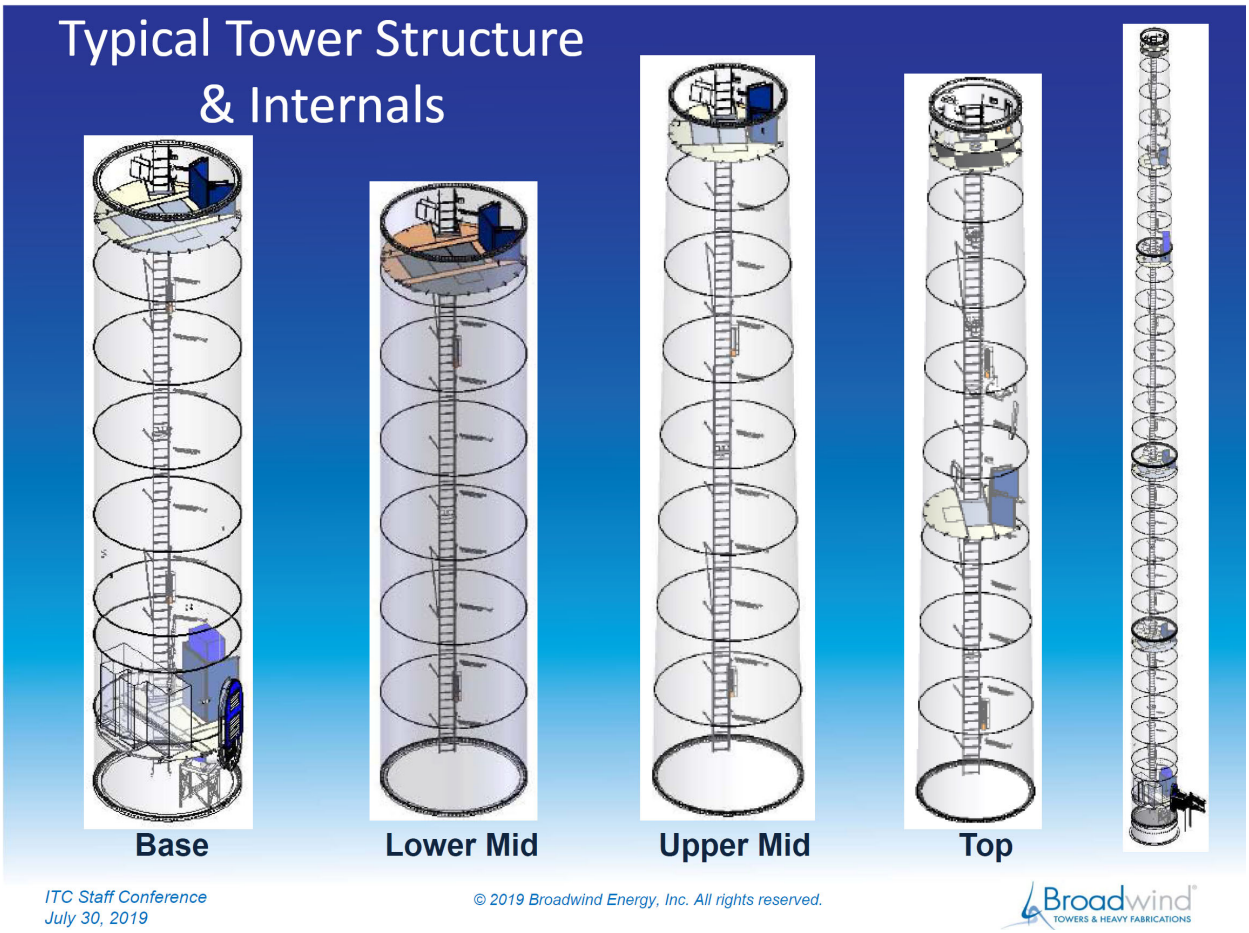
Source: DOE/NREL, credit: Iberdrola Renewables.

[50] Wind towers in the United States commonly consist of three sections, but the Petitioners reported producing four-, five-, six-, and even seven-section towers during the period of investigation. Hearing transcript, pp. 90-91 (Blashford), p. 91 (Cole).

[51] Petition, p. 9.

[52] Petition, p. 12; conference transcript, p. 22 (Janda).

Figure I-4
Wind towers: Tower sections and corresponding internals



Source: Janda, Dennis, "Wind Tower Manufacturing," Broadwind Energy Inc., 2019, p. 2 (PowerPoint presentation at the USITC staff conference, July 30, 2019).

The average hub height of wind towers installed in the United States increased from 79 meters (259 feet) in 2009 to 88 meters (289 feet) in 2018.[53] Overall, the share of the market accounted for by towers of less than 80 meters (262 feet) declined, while the share of 90 to 100-meter (295 to 328-foot) towers substantially increased (figure I-5). Taller towers offer advantages by accommodating longer blades[54] that can capture more energy[55] from the higher

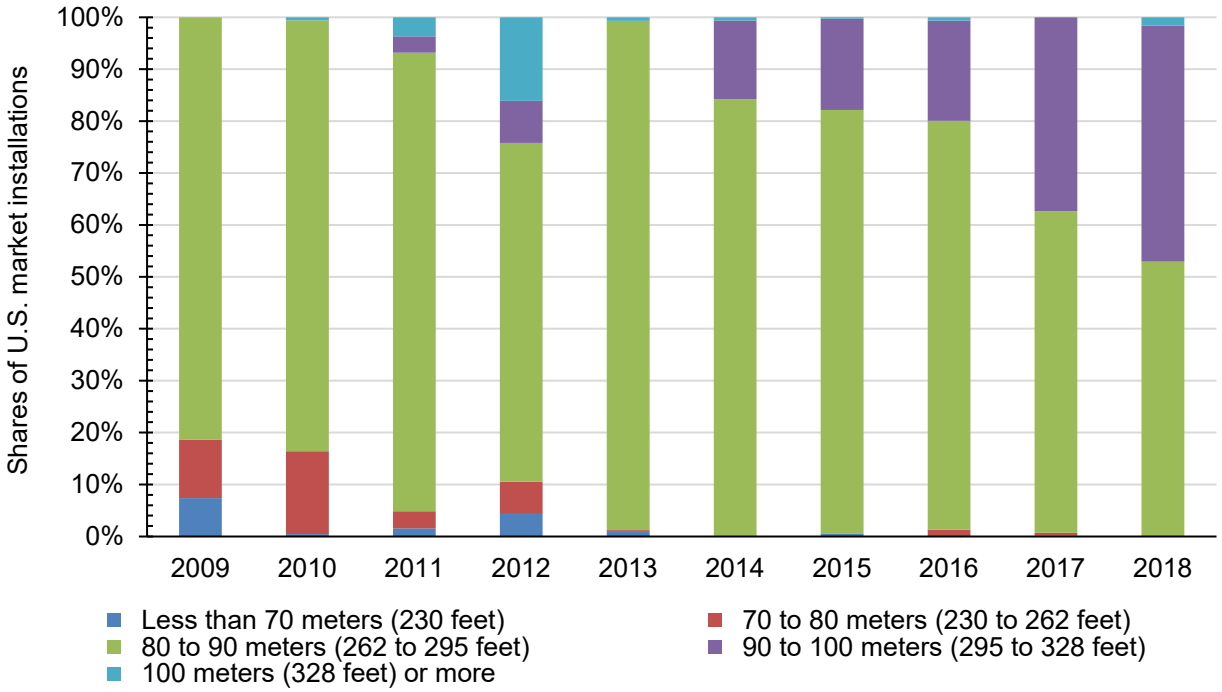
[53] Wiser, Ryan and Mark Bolinger, *2018 Wind Technologies Market Report*, U.S. Department of Energy ("USDOE"), Office of Energy Efficiency and Renewable Energy ("OEERE"), August 2019, p. 24, https://emp.lbl.gov/windtechnologies-market-report, retrieved May 4, 2020.

[54] Depending on the specific model, towers that are 80-meters (262-feet) tall (hub height) can accommodate blades ranging from 38.5 meters (126 feet) to 50.0 meters (164 feet) in length (blade tip to hub center). Industrial Wind Energy Opposition ("AWEO"), "Size Specifications of Common Industrial Wind Turbines," no date, http://www.aweo.org/windmodels.html, retrieved August 13, 2019.

[55] The power captured by a wind turbine is generally proportional to the sweep area of the blades. AWEA prehearing brief, p. 15.

and more constant wind speeds occurring at higher altitudes,[56] often with less turbulence which promotes longer service lifespans and lower operating and maintenance costs from the lower system loads on the turbine.[57]

Figure I-5
Wind towers: Share of U.S. market installations by hub height, 2009–18



Source: Wiser, Ryan and Mark Bolinger, *2018 Wind Technologies Market Report*, USDOE, OEERE, August 2019, data file, https://emp.lbl.gov/windtechnologies-market-report, retrieved May 4, 2020.

While tubular steel towers are the most common design for utility-scale wind turbines, other tower technologies are being used or are under development, often as a result of the increasing size and height of wind turbines. These include concrete (constructed on-site from segments either cast in-situ or assembled from precast, reinforced panels),[58] hybrid (with both

[56] Petition, pp. 7-8; exh. I-11: Office of Energy Efficiency and Renewable Energy, *The Inside of a Wind Turbine*, p. 447; AWEA prehearing brief, p. 15.

[57] Miceli, Francesco, "Wind Turbine Towers – the Bigger the Better," June 1, 2017, http://www.windfarmbop.com/tag/concrete-tower/.

[58] Gocha, April, "Taller Concrete Wind Turbine Towers May Finally Get Off the Ground to Expand Wind Power Potential," June 12, 2017, https://ceramics.org/ceramic-tech-today/taller-concrete-wind-turbine-towers-may-finally-get-off-the-ground-to-expand-wind-power-potential; Rycroft, Michael, "Concrete Towers Lift Wind Turbines to New Heights," January 11, 2017, https://www.ee.co.za/article/concrete-towers-lift-wind-turbines-new-heights.html.

concrete and steel sections),[59] and space frame (steel lattice towers with five legs covered with an architectural fabric)[60] towers.

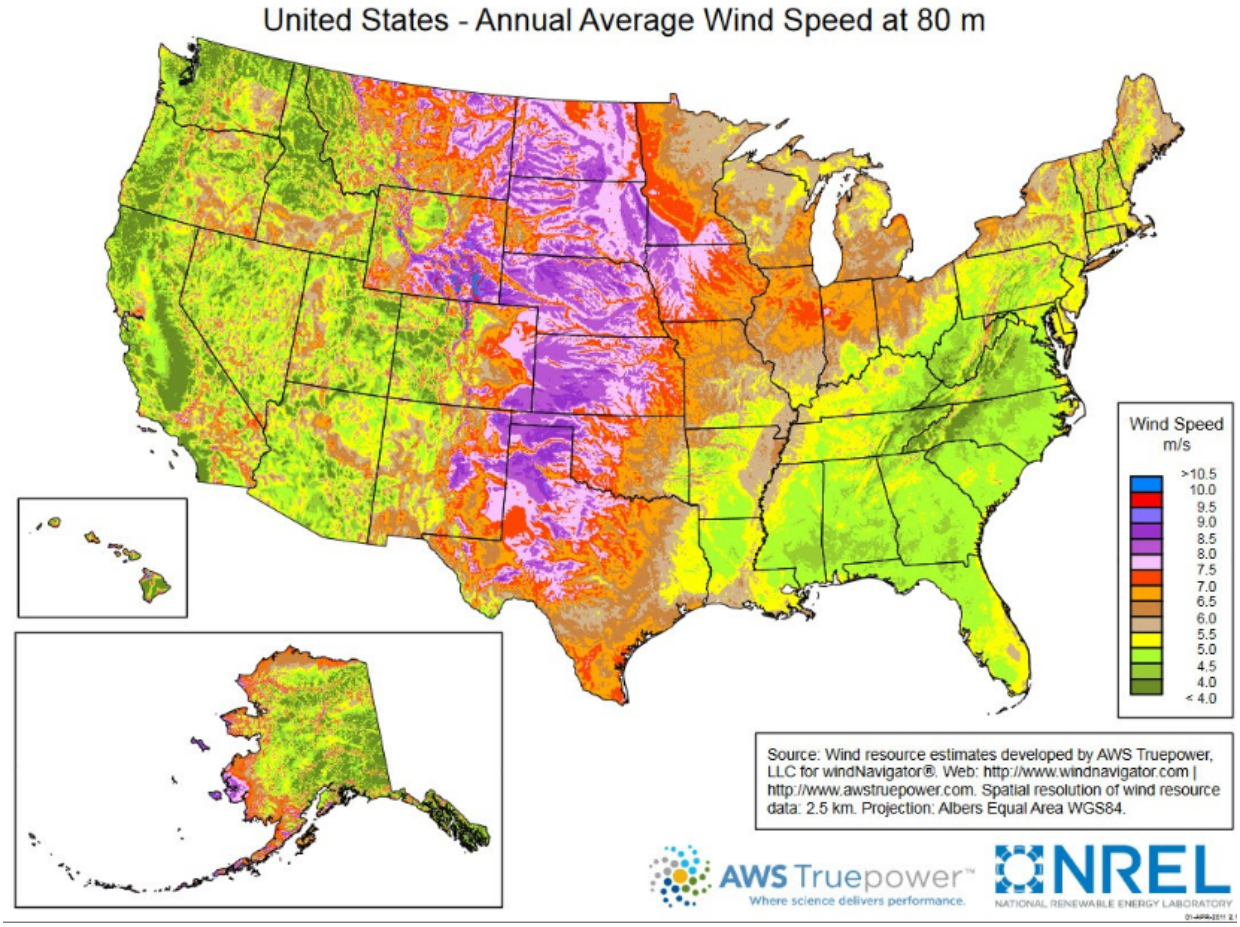
The installed generating capacity of U.S. wind turbines (totaling 107,319 MW in first-quarter 2020) is concentrated between the Rocky Mountains and the Mississippi River— the "Wind Corridor"[61]— where average annual wind speeds at an altitude of 80 meters (262 feet) are the fastest across the continental United States (figure I-6). Texas is the leading state, with 29,407 MW of installed capacity, about three times as much as the next two-highest states, Iowa (with 10,664 MW) and Oklahoma (with 8,173 MW) (figure I-7). Of the 41 states with installed wind power generating capacity, 19 have cumulative capacities exceeding 1,000 MW.

[59] Miceli, Francesco, "Wind Turbine Towers – the Bigger the Better," June 1, 2017; "Concrete Towers for Onshore Wind Farms: an Overview," July 7, 2012, http://www.windfarmbop.com/tag/concrete-tower/.

[60] Trabish, Herman K., "Photos: Is GE's Space Frame Tower the Future of Wind Power?," March 7, 2014, https://www.greentechmedia.com/articles/read/is-ges-space-frame-wind-turbine-tower-the-future-of-wind-power.

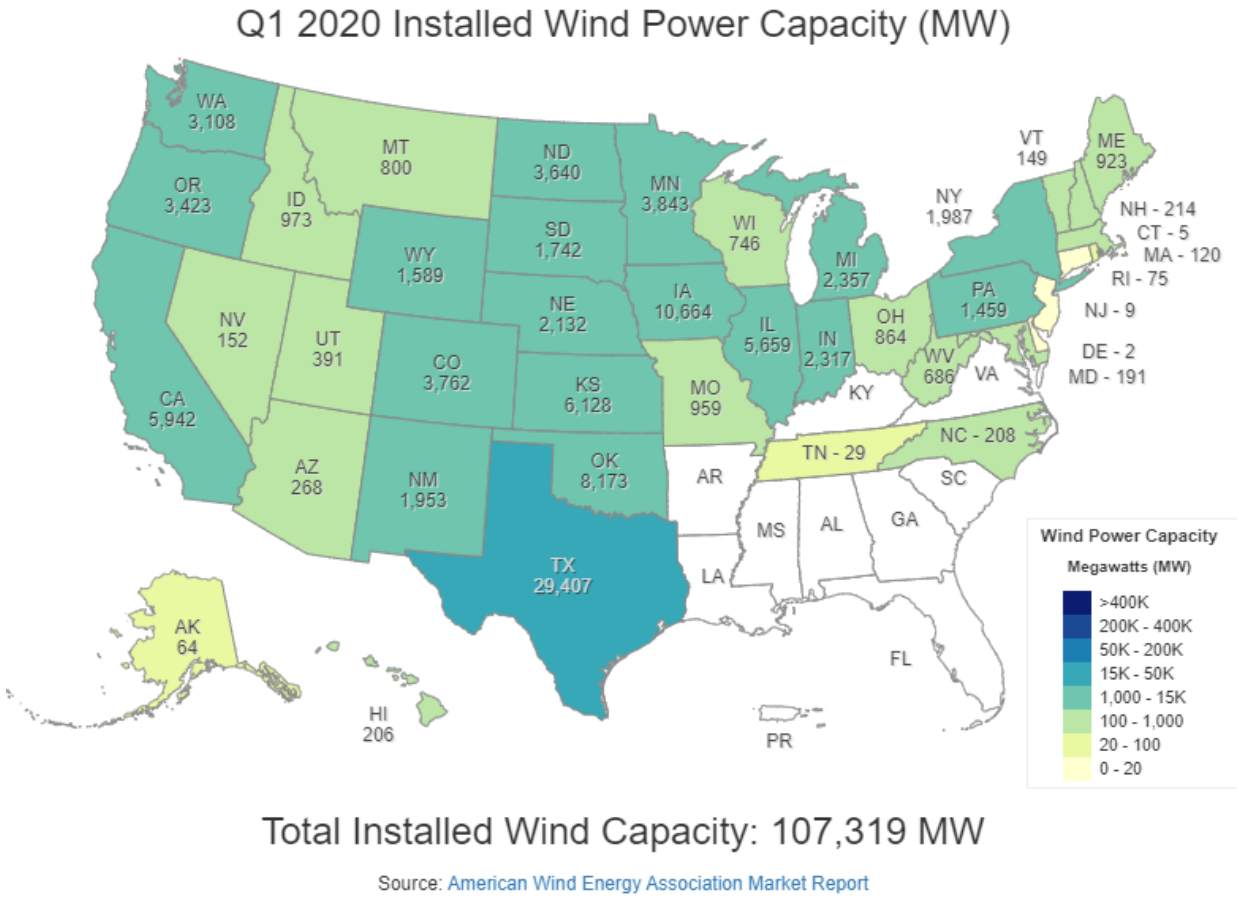
[61] Hearing transcript, p. 54 (Cole); GE's prehearing brief, p. 7.

Figure I-6
Wind towers: Wind speeds across the United States



Source: U.S. Department of Energy ("USDOE"), Wind Energy Technologies Office ("WETO"), WINDExchange, "U.S. Average Annual Wind Speed at 80 Meters," no date, https://windexchange.energy.gov/maps-data/319.

Figure I-7
Wind towers: U.S. installed wind power capacity by state, first-quarter 2020



Source: GE's prehearing brief, June 17, 2020, p. 7; exh. 1: Wind Energy Technologies Office, U.S. Installed and Potential Wind Power Capacity and Generation, https://windexchange.energy.gov/maps-data/321 (selected for 2020).

As of the first half of 2002, only 30 MW of U.S. operating wind power generating capacity was offshore. The Block Island Wind Farm, off the coast of Rhode Island, currently represents all U.S. operating offshore capacity.[62] [63]

[62] Musial, Walter, Philipp Beiter, Paul Spitsen, Jacob Nunemaker, and Vahan Gevorgian, 2018 *Offshore Wind Technologies Market Report*, USDOE, OEEFE, August 2019, pp. 5, 12, https://www.energy.gov/sites/prod/files/2019/09/f66/2018%20Offshore%20Wind%20Technologies%20Market%20Report.pdf.

[63] A second offshore wind power generating project was completed in July 2020. Dominion Energy Inc. completed the installation of two new 6-MW offshore wind turbines at its Coastal Virginia Offshore Wind ("CVOW") project located on 112,800 acres leased from the U.S. Bureau of Ocean Energy Management, 27 miles off the coast of Virginia Beach, Virginia. Initial power generation is scheduled to commence later this summer but Dominion Energy plans for more than 220 such turbines capable of

Wind-generating projects are being located offshore to take advantage of stronger, more consistent, and more abundant wind currents than those onshore; proximity to major costal population and energy-consuming centers for reduced power-transmission costs; and stronger afternoon and evening offshore wind speeds (rather than stronger night-time onshore wind speeds) that match the timing of rising electric-power consumption and peak utility-load periods.[64] At the end of 2018, 25,824 MW[65] of offshore wind power-generation projects were in various stages of planning, site leasing, permitting, or electric-power sale offtake agreement negotiations.[66] Project sites are located predominantly off the Atlantic Coast from Maine down to South Carolina, with others located off Ohio's Lake Erie coast, off the Pacific Coast of both northern and central California, and around Hawaii's Oahu Island.[67]

generating 2,600 MW of wind power by 2026 at this offshore site, which will be the largest wind project in federal waters. Dominion Energy, "Coastal Virginia Offshore Wind," no date, https://www.dominionenergy.com/company/making-energy/renewable-generation/wind/coastal-virginia-offshore-wind#:~:text=About%20the%20Project,of%20Mines%20Minerals%20and%20Energy.&text=Dominion%20Energy%20will%20partner%20with,Denmark%20on%20the%20two%20turbines, retrieved July 6, 2020; "Dominion Energy Announces Largest Offshore Wind Project in US," news release, September 19, 2019, https://news.dominionenergy.com/2019-09-19-Dominion-Energy-Announces-Largest-Offshore-Wind-Project-in-US; Schneider, Gregory S., "Virginia's First Offshore Wind Turbines Promise Jobs and Clean Power," *Washington Post*, June 30, 2020, https://www.washingtonpost.com/local/virginia-politics/virginia-offshore-wind-turbines/2020/06/30/5e4eb518-bacf-11ea-bdaf-a129f921026f_story.html.

[64] Small, Laura, "Fact Sheet - Offshore Wind: Can the United States Catch up with Europe?," Environmental and Energy Study Institute ("EESI"), January 4, 2016, https://www.eesi.org/papers/view/factsheet-offshore-wind-2016.

[65] Musial, Walter, Philipp Beiter, Paul Spitsen, Jacob Nunemaker, and Vahan Gevorgian, 2018 *Offshore Wind Technologies Market Report*, USDOE, OEEFE, August 2019, pp. 5-6, https://www.energy.gov/sites/prod/files/2019/09/f66/2018%20Offshore%20Wind%20Technologies%20Market%20Report.pdf.

[66] Ibid., p. 12.

[67] Musial, Walter, Philipp Beiter, Paul Spitsen, Jacob Nunemaker, and Vahan Gevorgian, 2018 *Offshore Wind Technologies Market Report*, USDOE, OEEFE, August 2019, pp. 9-12, https://www.energy.gov/sites/prod/files/2019/09/f66/2018%20Offshore%20Wind%20Technologies%20Market%20Report.pdf.

Manufacturing processes

Wind towers are produced by qualified manufacturers[68] to the proprietary specifications of each individual OEM to support its nacelle.[69] Each wind-turbine OEM usually has multiple tower designs. The wind-turbine model and characteristics of the wind project site determine which tower design will be used in a particular wind project.

Wind towers are manufactured from heavy gauge, cut-to-length steel plates, which are purchased by the tower manufacturer and are typically 3 meters (10 feet) wide, 12 meters (39 feet) long, and 0.5 to 2 or more inches thick. Plate thickness is related to the rotor diameter, weight, and design approach, with some wind turbine OEMs (who are generally the tower purchasers) using lighter towers. The plate for the base of the tower is the thickest and becomes thinner upward toward the top. The high-strength low-alloy steel plate typically meets either European specifications (e.g., S355J2 or S355N) or U.S.-equivalent specifications (e.g., ASTM A709 or A572).[70]

Manufacturing of wind towers is a multi-step process which requires a wide variety of large-scale fabrication procedures. Depending on the overall height and design, the tower is generally manufactured and transported as three to five sections for assembly at the wind project site. The major steps are (1) plate cutting and rolling, (2) can welding, (3) can-to-can welding, (4) flange welding, (5) internal-supports installation, (6) door-frame installation, (7) metallizing and painting, and (8) final internals installation.[71]

Plate cutting and rolling— After the steel plate is checked for quality and cleaned, it is shaped with a plasma and/or oxygen acetylene cutter and its edges may be beveled to facilitate

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[68] For example, GE only purchases towers *** but not all of GE's suppliers ***. GE also reports having ***. GE's prehearing brief, pp. 13-14, 22-23; GE importer/purchaser questionnaire responses, at III-8, III-12, III-20, III-21, III-22, III-31, III-35; GE's posthearing brief, pp. 38-40; att. A: Statement of ***, pp. 1-3.

Similarly, *** are necessary for Vestas to qualify a potential tower supplier, a process that includes on-site visits, qualification orders, and close collaboration regarding quality and technological standards. Vestas's prehearing brief, p. 10. For more details and a chronology of Vestas's qualification process, see Vestas's posthearing brief, pp. 10-11.

Broadwind is qualified to produce towers for all four major OEMs *** and Arcosa is qualified to produce for three of these OEMs and is negotiating to become qualified by ***. Respondents' joint prehearing brief, p. 6; Hearing transcript, p. 89 (Blashford), p. 89 (Cole); Petitioners' posthearing brief, exh. 1: Answers to Commissioner Questions, pp. 62-63.

[69] Petition, p. 8; hearing transcript, p. 115 (Blashford); GE's prehearing brief, p. 22; Petitioners' posthearing brief, exh. 1: Answers to Commissioner Questions, p. 62.

[70] Petition, p. 9; conference transcript, pp. 79-80 (DeFrancesco); p. 80 (Janda).

[71] Unless otherwise noted, this information is based on Petition, pp. 9-12; Janda, "Wind Tower Manufacturing," Broadwind, PowerPoint presentation, USITC staff conference, July 30, 2019, pp. 3-15.

welding. The plate is then passed through a roller, which bends it into a cylindrical or conical shape.

Can welding— The longitudinal edges of the rolled plate are welded together on both the inside and outside of the seam to create a "can." A typical tower consists of 30 to 40 such cans (figure I-4). The quality of the welded joints is checked through ultrasonic testing.

Can-to-can welding— The individual cans are then fitted together and then circumferentially welded together to create a tower section. Tower sections vary in length and depend on the height of the tower and number and type of section.[72]

Flange welding— A forged steel flange— a high-precision, machined steel ring with a flared rim into which a series of evenly spaced holes are drilled into its circumference— is welded onto the cans at the ends of each tower section, to fasten the sections together flange-to-flange with large structural nuts and bolts.[73]

Internal-supports installation— The brackets, clips, and lugs (to which the internals will be attached) are welded onto the interior surface of the sections as supports for subsequent attaching the internal components. The brackets are generally fabricated from steel bars but can also be purchased as prefabricated brackets of steel angles.

Door-frame installation— A utility/service door is installed at the bottom of the base section by cutting an oval opening with an oxygen acetylene torch, installing a steel-plate frame to the opening, and attaching the steel-plate door.

Metallizing and painting— Both the inner and outer surfaces of tower sections are prepared by blasting with grit to remove debris and create a rough surface that improves paint adherence. The flanges and other portions of the section surface may be metalized by applying an aluminum-zinc alloy coating by a thermal spraying process to inhibit rust and corrosion.[74] The sections are then painted with one or more layers of epoxy, urethane, or other coating materials on the interior and two or more layers on the exterior. The painted sections are allowed to dry and cure, which can require several hours, depending on the weather.

[72] A taller tower does not necessarily require longer sections as the section lengths for an 80-meter (262-foot) tower consisting of three sections can be longer than a 100-meter (328-foot) tower consisting of five sections. However, a 100-meter (328-foot) tower will be substantially heavier overall.

[73] Conference transcript, pp. 19-20 (Janda); pp. 19-20, 80-81 (Janda). Conference witnesses for the Petitioners and a Respondent testified that their firms don't have the capability to produce their own flanges but rather purchase them from outside suppliers. Conference transcript, p. 81 (Janda); p. 81 (Cole); p. 173 (Trudel). According to Vestas, these flanges are imported, as they are not available from domestic sources. Vestas's postconference brief, exh. A: Answers to Staff Questions, p. 1.

[74] Conference transcript, p. 21 (Janda).

Final internals installation— After the mechanical and electrical internals are installed within, the tower sections undergo a final quality-control inspection process.

Post-manufacture, transportation, and assembly

The end of each tower section is covered with a tarp prior to being moved to a temporary storage area ("laydown yard"),[75] usually located directly adjacent to its manufacturing facility,[76] for pick-up by the wind-turbine OEM customer.[77] Transporting the individual tower sections, nacelles, hub, and blades for subsequent assembly at the wind project site is usually arranged by the OEM customer.[78] After the OEM delivers all of the turbine components to the project site, a plant contractor undertakes the engineering, procurement, and construction ("EPC") work which includes assembling the electrical interconnections and erecting and assembling the individual wind turbines. The OEM also tests the connected turbines and can be contracted to perform long-term turbine maintenance.[79]

Transportation is a significant issue to the wind power generating industry[80] because the optimal geographic conditions for siting wind projects are often remote locations or complex terrains and wind turbine components are large, heavy, and extremely difficult to transport.[81] [82]

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[75] To organize and manage the temporary storage of wind turbine components for subsequent transfer to the wind project site, laydown-yard requirements include: (1) proximity to both wind farm clusters and to shipping ports, rail spurs, and major highway networks; (2) suitable equipment to off-load and load wind turbine components; (3) ample space for organization and placement of blades and nacelles; and (4) 24-hour security. North American Windpower ("NAW") Staff, "Wave Wind Breaks Ground on Lay-Down Yard," March 13, 2009, https://nawindpower.com/wave-wind-breaks-ground-on-lay-down-yard.

[76] Petitioners' posthearing brief, exh. 1: Answers to Commissioner Questions, p. 27.

[77] Hearing transcript, pp. 57 (Cole), 86 (DeFrancesco), 115 (Blashford); Petitioners' posthearing brief, p. 5.

[78] Hearing transcript, pp. 57 (Cole), 82, 85 (Pickard), 145 (Long), 289 (Campbell); GE's prehearing brief, p. 14.

[79] GE prehearing brief, p. 3.

[80] Although capable of producing each type of tower section at both its U.S. and Canadian facilities, Marmen also ships the top sections from its Quebec facilities, which are lighter, easier, and less expensive to transport than the larger base and mid sections produced at its South Dakota facility located closer to the wind power-generation project sites. Hearing transcript, pp. 161-162, 207 (Pellerin); Marmen's prehearing brief, pp. 7, 25, 28-31, 68.

[81] Mooney, Meghan, and Galen Maclaurin, Transportation of Large Wind Components, National Renewable Energy Laboratory ("NERL"), September 2016, p. 1, https://www.nrel.gov/docs/fy16osti/67014.pdf; cited in AWEA prehearing brief, p. 8.

[82] Additional factors that wind-project developers also consider include proximity to large utility transmission lines, environmental and wildlife impacts, land ownership, existing infrastructure, population density, regional land use, and state and local siting ordinances. AWEA prehearing brief, p. 6.

Tower sections are usually transported by truck when the wind project site is within *** away from the storage yard.[83] Some of the largest tower sections that are too large to be transported by rail are transported by truck or by ship (vessel) and barges.[84] Due to their sheer size (and fragility of nacelles and blades), there are highly complicated logistical considerations and hazards for transporting individual tower sections and other components (table I-9).[85] As the generating capacity of wind turbines grow and the tower heights and base diameters expand, the larger component dimensions and weights constrain the types of feasible routes, due to larger turning radius, tall clearance requirements, and road weight restrictions. The larger 2-MW to 3-MW turbines that have become the standard for land-based wind projects are reaching the upper limit for transit by road. For tower sections with diameters exceeding 4 meters (13 feet), road transit can require up to eight oversized loads for a single tower.[86]

[83] Hearing transcript, p. 161 (Pellerin).

[84] Due to their massive sizes and weights, it can be more costly to transport tower sections over land than shipping by sea on a per-mile basis. Hearing transcript, pp. 145, 255 (Long); GE's posthearing brief, p. 20. For more details about how tower sections are loaded onto a truck trailer and aboard a ship, see GE's posthearing brief, pp. 21-22.

[85] See e.g.: DeBruler, Dennis, "Transporting Wind Turbine Parts," Industrial History, September 23, 2017, http://industrialscenery.blogspot.com/2017/09/transporting-windmill-parts.html.

[86] AWEA prehearing brief, June 17, 2020, pp. 8-9; Mooney, Meghan, and Galen Maclaurin, Transportation of Large Wind Components, National Renewable Energy Laboratory ("NERL"), September 2016, p. 3, https://www.nrel.gov/docs/fy16osti/67014.pdf; cited in AWEA prehearing brief, p. 9.

Table I-9
Wind tower sections: Transportation factors, by mode, within the United States and between Canada and the United States

Factor	Truck	Rail	Vessels and barges
Number of sections	***	***	***
Diameter of sections (maximum)	***	***	***
Length of sections (total)	***	***	***
Weight of sections (total)	***	***	***

Source: Marmen's postconference brief, exh. 1: Response to Staff Questions, pp. 1-5.

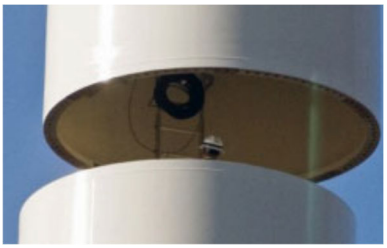
At the wind project site, the base section of the tower is lifted by a crane and lowered straight down onto the foundation platform, over a power unit that sits in the base of the tower (figure I-8). The flange at the base of the tower is attached to the foundation platform with large structural nuts and bolts, then the next section of the tower is added and the flanges at each end of the tower sections are bolted together. Once all sections of the tower are assembled, the nacelle is mounted onto the top-section flange and finally the rotor (hub and blades) assembly is attached to the generator shaft protruding from the front of the nacelle.

Figure I-8
Wind towers: Turbine installation on land

Raising the base section, with the foundation platform and power unit in the foreground.

Lowering the base section onto the foundation platform and over the power unit.

Raising and positioning the next tower section over those already in place.



Positioning tower sections for bolting together the flanges.

Raising the nacelle, containing the generator, for mounting onto the top-section flange.

Raising the rotor assembly for mounting onto the generator shaft at the front of the nacelle.

Source: DOE/NREL, credit: First Wind (top), Patrick Corkery (center), and Todd Spink (bottom).

For offshore wind projects, towers are constructed from high-grade steel to withstand the additional hydrodynamic loading from wave action and require dedicated corrosion protection systems with high-grade main coatings due to the more expensive offshore operating and maintenance conditions, according to the American Wind Energy Association ("AWEA").[87] In addition to being more rugged, offshore wind tower are larger, with base diameters varying as much as 5 meters (16 feet) to 10 meters (33 feet), and heavier with a 120 meters- (394 feet-) high tower weighing over 2,500 metric tons (2,756 short tons).[88] [89] Offshore towers are most commonly installed upon a tubular monopile foundation (substructure) set into the seafloor, which represent about 73.5 percent of the total global offshore wind market in 2018,[90] due to the ease of installation in shallow to medium water depths.[91] Other types of offshore tower support substructures include various fixed-bottom and moored floating foundations (figure I-9). The turbine and foundation components are transported by "seajacking" (self-elevating) ships or barges to the project site (figure I-10). After the monopile foundation base is set into the seabed by a shipboard hydraulic pile-driver, the transition piece is lowered and attached onto the top. This transition piece, which includes a boat-mooring fixture, access ladder, and top platform, serves as the mounting platform protruding above the surface of the water for attaching the base section of the tower.

[87] National Academy of Sciences ("NAS"), Structural Integrity of Offshore Wind Turbines: Oversight of Design, Fabrication, and Installation, 2011, pp. 19–20, https://www.bsee.gov/sites/bsee.gov/files/tap-technicalassessment-program//701aa.pdf; Ng, Chong, and Li Ran, eds., Offshore Wind Farms: Technologies, Design, and Operation, Elsevier Ltd., March 2016, https://www.sciencedirect.com/book/9780081007792/offshore-wind-farms; both cited in AWEA's prehearing brief, pp. 26-27.

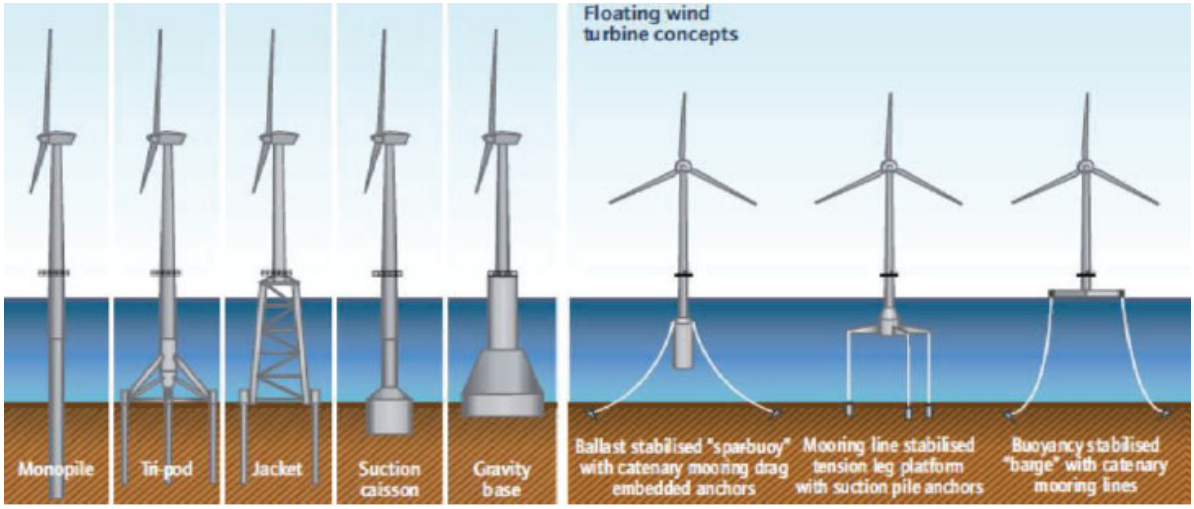
[88] AWEA prehearing brief, pp. 27-28.

[89] AWEA stated that it does not consider most onshore manufacturing facilities being capable of handling the thicker plates, higher-strength steel sizes, and higher-strength welding requirements to fabricate wind towers capable of resisting the extreme offshore environmental conditions. Wahlen, Patrick, "Welding Challenges in the Fabrication of Offshore Wind Towers," Lincoln Electric Co., 2010, https://www.lincolnelectric.com/en-us/industries/Documents/Windpower_Eng_Wahlen_Reprint_Oct_2010.pdf; cited in AWEA's prehearing brief, pp. 28-29.

[90] Musial, Walter, Philipp Beiter, Paul Spitsen, Jacob Nunemaker, and Vahan Gevorgian, *2018 Offshore Wind Technologies Market Report*, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, August 2019, p. 45, https://www.energy.gov/sites/prod/files/2019/09/f66/2018%20Offshore%20Wind%20Technologies%20Market%20Report.pdf.

[91] Woodhatch, Matthew, "Offshore Wind Turbines— How Do You Install a Wind Turbine Out at Sea," Groundsure, April 21, 2017, https://www.groundsure.com/resources/offshore-wind-turbines/.

Figure I-9
Wind towers: Offshore fixed bottom and moored floating foundations

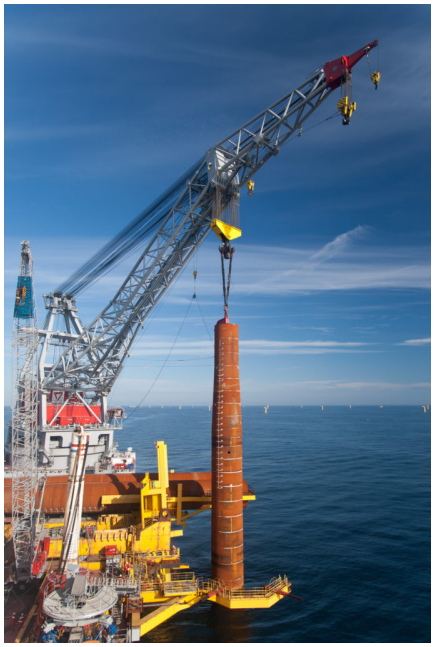


Fixed-bottom foundations Moored floating foundations

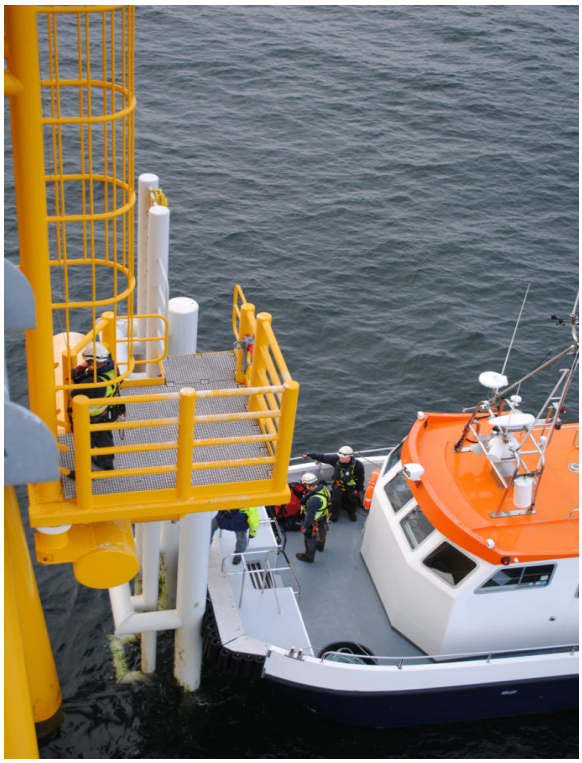
Source: Konstantinidis, E.I., and P.N. Botsaris, "Wind Turbines: Current Status, Obstacles, Trends, and Technologies," *Materials Science and Engineering*, vol. 161, 2016, p. 3, https://iopscience.iop.org/article/10.1088/1757-899X/161/1/012079.

Figure I-10
Wind towers: Turbine installation offshore

Transporting a rotor assembly loaded on a seajacking barge.



Hydraulic driving of the monopile.



Transition piece with mooring fixture and ladders.

Installing the rotor assembly onto the nacelle.

Source: Woodhatch, Matthew, "Offshore Wind Turbines— How Do You Install a Wind Turbine Out at Sea," Groundsure, April 21, 2017, https://www.groundsure.com/resources/offshore-wind-turbines/.

Domestic like product issues

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) channels of distribution; (4) common manufacturing facilities, production processes, and production employees; (5) customer and producer perceptions; and (6) price.

In its preliminary determinations, the Commission defined a single domestic like product, co-extensive with the scope of these investigations.[92] The Commission found that all wind towers share the same basic physical characteristics, manufacturing process and employees, channels of distribution, customer perceptions, and are comparably priced when produced to the same OEM specifications.[93]

In the final phase of these investigations, one party requested the collection of data to assess offshore wind towers, however there was no reported production of offshore wind towers in the United States.[94]

[92] *Utility Scale Wind Towers from Canada, Indonesia, Korea, and Vietnam, Inv. Nos. 701-TA-627-629 and 731-TA-1458-1461* (Preliminary), USITC Publication No. 4952, August 2019 ("Preliminary phase publication") at p. 7.

[93] Preliminary phase publication at p. 8.

[94] In its comments on the draft final phase questionnaires, respondent Marmen requested that the Commission collect additional data for offshore wind towers as a separate domestic like product. *See* Marmen's Comments on the Draft Questionnaires (EDIS No. 691801), pp. 1-2. AWEA additionally requested in its prehearing brief that the Commission find offshore towers to be a separate like product, citing differing production processes, physical characteristics, and differences in cost. *See* AWEA's prehearing brief, pp. 25-29. The Commission requested additional information to collect quantity and value data regarding production of offshore wind towers. *See* U.S. producer questionnaire at Question II-13 and U.S. importer questionnaire at Questions II-5g, II-6g, II-7g, II-8g, and II-9g. No questionnaire recipient indicated domestic production or U.S. importation of wind towers for offshore applications.

Part II: Conditions of competition in the U.S. market

U.S. market characteristics

Background

Wind towers are a component of utility scale wind turbine electrical power generating units. Wind towers are the steel structures upon which the other major wind turbine components, such as rotor blades and nacelles, are mounted. Wind towers are purchased by wind turbine manufacturers and produced to the wind turbine manufacturer's specifications. These wind turbine manufacturers are sometimes referred to as Original Equipment Manufacturers (OEMs) and consist of (***). Each wind turbine manufacturer typically uses multiple tower designs depending on the project site and the wind turbine used.[1]

Demand for wind towers is derived from the demand for wind turbines, which is in turn derived from the demand for wind-generated electric power. The growing overall appeal of wind power for environmental and efficiency reasons, as well as Federal tax credit programs, contribute to demand trends for wind-generated electric power.

Because wind towers are very large and heavy, transportation costs from the production facility to the project site where the wind towers are incorporated into wind turbines are often high. According to importer/purchasers, transportation costs are an important purchasing factor.

Apparent U.S. consumption of wind towers decreased by *** percent between 2017 and 2018 but increased by *** percent between 2018 and 2019, resulting in a net increase of *** percent in apparent U.S. consumption during 2017-19. This level of wind turbine consumption is substantially higher than that of 2013-14.[2]

[1] *Utility Scale Wind Towers from China and Vietnam*, *Inv. Nos. 701-TA-486 and 731-TA-1195-1196 (Review)*, USITC Publication 4888, April 2019, p. II-1.

[2] See Figure II-1, below.

Market structure

Wind turbine manufacturers purchase U.S.-produced wind towers as well as import wind towers themselves, and they also sometimes buy from unrelated importers. Thus, wind tower sourcing decisions often involve whether to purchase from U.S. wind tower producers and/or to import from foreign producers of wind towers.

Four wind-turbine manufacturing firms (***) accounted for nearly all purchases and imports of wind towers in the United States.[3] The fifth such firm, ***. These U.S. wind turbine manufacturers sell wind turbines to a project market (utilities and developers) with many downstream purchasers.[4] Arcosa described the limited number of wind turbine manufacturers as allowing those firms to exercise pricing power in purchasing wind towers.[5]

U.S. purchasers

Because most purchasers of wind towers are also importers of wind towers, the Commission issued consolidated importer/purchaser questionnaires (rather than separate questionnaires) to firms importing and/or purchasing wind towers.[6] The Commission received seven usable questionnaire responses from firms that had imported and/or purchased wind towers from 2017-19. In addition to the aforementioned wind-turbine manufacturing firms (***), *** provided importer/purchaser questionnaire responses: ***.

The OEM importer/purchasers received bids from both domestic and import sources, even if they did not actually import or purchase from all sources. (See Part V.) These firms typically purchased domestically produced wind towers from U.S. producers but usually imported subject imports, rather than purchasing them from an unrelated importer. Of the seven responding importer/purchasers, three *** imported Canadian wind towers, three (***) imported Indonesian wind towers, four *** imported Korean wind towers, *** imported Vietnamese wind towers, and three imported wind towers from nonsubject countries. With respect to purchases, four (***

[3] See import data in Part IV, and customers listed in U.S. producers' questionnaires. In this chapter, all firms that submitted a U.S. importers'/purchasers' questionnaire are referred to as "importer/purchasers," even if they only imported.

[4] Conference transcript, p. 48 (Cole).

[5] Hearing transcript, p. 19 (Cole).

[6] Questionnaires were not sent to firms that use wind turbines to produce electricity, as they do not directly purchase wind towers. See email from ***, March 4, 2020.

***) purchased domestic wind towers, none purchased imports of the subject merchandise from Canada, one (***) did so from Indonesia, one did so (***) from Korea, two (***) did so from Vietnam, and one (***) purchased imports of wind towers from other sources.

Product changes

Six U.S. producers and six U.S. importer/purchasers stated that there had been changes in the product range, mix, or marketing of wind towers since January 1, 2017, citing an increase in the use of larger, heavier towers that can support turbines with more generating capacity. Importer/purchaser *** described technological innovations to its turbines as a product change. It added that these innovations meant that it required larger towers made of thicker steel. Six U.S. producers and six importer/purchasers also described wind towers as becoming taller and heavier. U.S. producer *** added that the typical number of sections per wind tower have also increased. Importer/purchaser *** stated that the antidumping duty orders on wind towers from China and Vietnam, along with section 232 tariffs on steel, have increased the costs and prices of wind towers. Importer/purchaser *** indicated that there had not been any changes in the product range, mix, or marketing of wind towers since January 1, 2017.

Section 301 tariffs

As described in Part I, since 2018, wind towers have been subject to an additional 25 percent tariff under section 301 of the Trade Act of 1974. U.S. producers and importer/purchasers were asked whether the implementation of section 301 tariffs on wind towers from China had affected their firms or the U.S. market for wind towers. Four U.S. producers and three importer/purchasers stated that the section 301 tariffs had not had an effect. Two U.S. producers and four importer/purchasers stated that they had, generally describing increased costs of components, especially steel flanges and tower “internals” such as ladders and platforms. As discussed in Part I, at the time of the implementation of the section 301 tariffs, wind towers from China were already subject to antidumping and countervailing duty orders.

Channels of distribution

As noted in the preliminary phase of these investigations, U.S. producers and importers of wind towers reported that all of their shipments were to end users, and no wind tower supplier reported any shipments to distributors.

Geographic distribution

In the preliminary phase of these investigations, parties disagreed over whether wind towers from different sources (including U.S. production) served the same geographic areas of the U.S. market. In this final phase, the Commission collected detailed geographic market and distance shipped data. U.S. importer/purchasers were asked to report their imports and purchases of wind towers by specific geographic destination region and year, and U.S. producers were asked to report their shipments by geographic destination. These geographic regions are more granular than in other Commission investigations.[7] Their results are summarized in table II-1, with each year from 2017-19 presented on a separate page. The first two columns of table II-1 both report shipments of U.S.-produced product; the first column presents the data as reported by U.S. producers, and the second presents the data as reported by importer/purchasers. Due to timing issues, these data may not match exactly. The table shows that most wind towers are shipped to the Upper and Lower Midwest and Central Southwest,[8] and relatively fewer wind towers are shipped to the Northeast, Pacific Coast, and Upper Southeast.

Arcosa stated that it had built its plants close to where the bulk of U.S. demand for wind towers is located.[9] Vestas stated that the concentration of U.S. production in the "wind corridor" (the central United States) made U.S. producers top contenders for supplying wind projects in that region, but not in the Northeast or the Pacific Coast.[10]

[7] In comments on questionnaires, Kousa and Kenertec recommended that the Commission request data for 2017 through 2019, not just 2019. See Kousa's and Kenertec's comments on draft questionnaires, October 21, 2019, pp. 7-9. Marmen recommended that the Commission request data on more granular geographical regions than the Commission usually does. See Marmen's comments on draft questionnaires, October 21, 2019, pp. 5-6. The Commission questionnaires approximately used Marmen's geographic definitions, except that, unlike Marmen, the questionnaires classified Michigan as Upper Midwest, and Ohio as Lower Midwest.

[8] See also Marmen's prehearing brief, p. 13, showing that most U.S. wind energy projects are in Texas, Midwestern states, and Plains states.

[9] Hearing transcript, p. 52 (Cole).

[10] Hearing transcript, p. 154 (Choy).

Table II-1
Wind towers: U.S. producers' shipments and U.S. importer/purchasers' purchases and imports of wind towers, by geographic market area and year, 2017-19

2017						
Region	U.S. producers' shipments of product (units)	U.S. importer/ purchaser purchases of U.S. product (units)	Imports and purchases of Canadian product (units)	Imports and purchases of Indonesian product (units)	Imports and purchases of Korean product (units)	Imports and purchases of Vietnamese product (units)
Northeast.–CT, ME, MA, NH, NJ, NY, PA, RI, and VT.	***	***	***	***	***	***
Upper Midwest.–MI, MN, NE, ND, SD, and WI.	***	***	***	***	***	***
Lower Midwest.–IL, IN, IA, KS, OH, and MO.	***	***	***	***	***	***
Upper Southeast.–DE, DC, MD, VA, and WV.	***	***	***	***	***	***
Lower Southeast.–AL, FL, GA, KY, MS, NC, SC, and TN.	***	***	***	***	***	***
Central Southwest.–AR, LA, OK, and TX.	***	***	***	***	***	***
Mountains.–AZ, CO, ID, MT, NV, NM, UT, and WY.	***	***	***	***	***	***
Pacific Coast.–CA, OR, and WA.	***	***	***	***	***	***
Other.–All other markets in the United States not previously listed, including AK, HI, PR, and VI.	***	***	***	***	***	***
All regions.	***	***	***	***	***	***

Table continued on next page.

Table II-1—Continued
Wind towers: U.S. producers' shipments and U.S. importer/purchasers' purchases and imports of wind towers, by geographic market area and year, 2017-19

2018						
Region	U.S. producers' shipments of product (units)	U.S. importer/ purchaser purchases of U.S. product (units)	Imports and purchases of Canadian product (units)	Imports and purchases of Indonesian product (units)	Imports and purchases of Korean product (units)	Imports and purchases of Vietnamese product (units)
Northeast.–CT, ME, MA, NH, NJ, NY, PA, RI, and VT.	***	***	***	***	***	***
Upper Midwest.–MI, MN, NE, ND, SD, and WI.	***	***	***	***	***	***
Lower Midwest.–IL, IN, IA, KS, OH, and MO.	***	***	***	***	***	***
Upper Southeast.–DE, DC, MD, VA, and WV.	***	***	***	***	***	***
Lower Southeast.–AL, FL, GA, KY, MS, NC, SC, and TN.	***	***	***	***	***	***
Central Southwest.–AR, LA, OK, and TX.	***	***	***	***	***	***
Mountains.–AZ, CO, ID, MT, NV, NM, UT, and WY.	***	***	***	***	***	***
Pacific Coast.–CA, OR, and WA.	***	***	***	***	***	***
Other.–All other markets in the United States not previously listed, including AK, HI, PR, and VI.	***	***	***	***	***	***
All regions.	***	***	***	***	***	***

Table continued on next page.

Table II-1—Continued
Wind towers: U.S. producers' shipments and U.S. importer/purchasers' purchases and imports of wind towers, by geographic market area and year, 2017-19

2019						
Region	U.S. producers' shipments of product (units)	U.S. importer/ purchaser purchases of U.S. product (units)	Imports and purchases of Canadian product (units)	Imports and purchases of Indonesian product (units)	Imports and purchases of Korean product (units)	Imports and purchases of Vietnamese product (units)
Northeast.–CT, ME, MA, NH, NJ, NY, PA, RI, and VT.	***	***	***	***	***	***
Upper Midwest.–MI, MN, NE, ND, SD, and WI.	***	***	***	***	***	***
Lower Midwest.–IL, IN, IA, KS, OH, and MO.	***	***	***	***	***	***
Upper Southeast.–DE, DC, MD, VA, and WV.	***	***	***	***	***	***
Lower Southeast.–AL, FL, GA, KY, MS, NC, SC, and TN.	***	***	***	***	***	***
Central Southwest.–AR, LA, OK, and TX.	***	***	***	***	***	***
Mountains.–AZ, CO, ID, MT, NV, NM, UT, and WY.	***	***	***	***	***	***
Pacific Coast.–CA, OR, and WA.	***	***	***	***	***	***
Other.–All other markets in the United States not previously listed, including AK, HI, PR, and VI.	***	***	***	***	***	***
All regions.	***	***	***	***	***	***

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

For U.S. producers, 10.3 percent of sales were within 100 miles of their production facility, 51.3 percent were between 101 and 500 miles, 24.1 percent were between 501 and 1,000 miles, and 14.2 percent were over 1,000 miles. Importers transported 40.4 percent of their imports within 100 miles of their U.S. point of shipment, 32.3 percent between 101 and 500 miles, 19.7 percent between 501 and 1,000 miles, and 7.5 percent over 1,000 miles.

U.S. producers and importer/purchasers were asked if prices for the same wind tower models were consistent across all shipping distances. No U.S. producer answered the question, likely because U.S. producers are generally not responsible for transportation of wind towers. (See Part V.) However, two ***) indicated elsewhere in the questionnaire that f.o.b. prices are the same to all destinations. Among importer/purchasers, *** stated that prices are consistent across, or do not depend on, distances shipped. However, *** stated that prices do vary by shipping distance, effectively allowing the supplier to share in the cost savings from a closer location.

U.S. producers and importer/purchasers were also asked to describe the importance of geographic location in their sales or purchases of wind towers. Three importer/purchasers (***) described geographic location as important. *** described wind towers as large and difficult to transport, making closer geographic location important. *** described *** and concluded that affordable logistics costs are needed for on time deliveries to project sites. U.S. producer *** described making three kinds of shipments: ***. U.S. producers *** expressed skepticism that geographic location was more important than price in determining sales of wind towers. *** stated that it lost sales to subject imports despite its own facilities being close to most wind projects. *** described one of its purchasers as ***.

Supply and demand considerations

U.S. supply

U.S. producers' capacity is higher than the capacity in subject countries, but most of those countries' producers (other than those of Vietnam) ship most of their production to the U.S. market. Table II-2 provides a summary of the supply factors regarding wind towers from U.S. producers and from subject countries.

Table II-2

Wind towers: Supply factors that affect the ability to increase shipments to the U.S. market

Country	Capacity (units)		Capacity utilization (percent)		Ratio of inventories to total shipments (percent)		Shipments by market, 2019 (percent)		Able to shift to alternate products
	2017	2019	2017	2019	2017	2019	Home market shipments	Exports to non-U.S. markets	No. of firms reporting "yes"
United States	3,975	4,091	69.5	70.8	***	***	***	***	***
Canada	***	***	***	***	***	***	***	***	***
Indonesia	***	***	***	***	***	***	***	***	***
Korea	***	***	***	***	***	***	***	***	***
Vietnam	***	***	***	***	***	***	***	***	***

Note.—Responding U.S. producers accounted for all known U.S. production of wind towers in 2019. U.S. producers' capacity includes ***. Analysis in the text includes a discussion of the impact of ***. Part III provides information on the U.S. industry ***. Responding foreign producer/exporter firms accounted for all known U.S. imports of wind towers from Canada, Indonesia, Korea, and Vietnam in 2019. For additional data on the number of responding firms and their share of U.S. production and of U.S. imports from each subject country, please refer to Part I, "Summary Data and Data Sources."

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

Domestic production

Based on available information, U.S. producers of wind towers have the ability to respond to changes in demand with moderate to large changes in the quantity of shipments of U.S.-produced wind towers to the U.S. market, depending on whether reported capacity utilization reflects U.S. producers' real ability to ship more wind towers. U.S. producers reported the availability of unused capacity (***),[11] limited by *** export shipments and low inventory levels.

When asked to identify any changes in the availability of U.S.-produced wind towers, five importer/purchasers (four OEMs and ***) listed difficulties in obtaining U.S.-produced wind towers. (***). *** stated that there was a lack of capacity in the U.S. market because of the impending expiration of tax incentives (discussed

[11] The analysis in this section is based on data reported in U.S. producers' questionnaires. Questionnaire respondents differed over whether the U.S. industry has sufficient unused capacity to supply U.S. demand or not. Inclusion or exclusion of ***. See "Supply constraints" below. See Part III for more discussion of U.S. producers' capacity.

below). *** stated that there was a general lack of capacity to meet customer requirement for lead times. *** stated that U.S. capacity had risen at some plants, but that it was still not enough to meet demand and project schedules. *** also stated that there was not enough U.S. capacity to meet demand. *** stated that the U.S. industry had sufficient capacity to meet 2017 and 2018 demand but was unable to meet the steep increase in demand in 2019 and 2020. It stated that capacity from Arcosa's idled facility in North Dakota is not available because it is too far from many wind projects and because ***.

Subject imports from Canada

Based on available information, the producer of wind towers from Canada has the ability to respond to changes in demand with very limited changes in the quantity of shipments of wind towers to the U.S. market. The main contributing factors to this degree of responsiveness of supply is the lack of availability of *** unused capacity (according to its questionnaire data), *** inventories, and *** shipments to non-U.S. markets.

Subject imports from Indonesia

Based on available information, the producer of wind towers from Indonesia has the ability to respond to changes in demand with moderate-to-low changes in the quantity of shipments of wind towers to the U.S. market. The main contributing factors to this degree of responsiveness of supply are the availability of some inventories and some shipments to non-U.S. markets. The principal factor mitigating responsiveness of supply is the limited availability of unused capacity.

Subject imports from Korea

Based on available information, producers of wind towers from Korea have the ability to respond to changes in demand with moderate changes in the quantity of shipments of wind towers to the U.S. market. The main contributing factors to this degree of responsiveness of supply are the availability of some unused capacity, some ability to shift shipments from inventories, and some shipments to non-U.S. markets.

Subject imports from Vietnam

Based on available information, the producer of wind towers from Vietnam has the ability to respond to changes in demand with moderate to large changes in the quantity of shipments of wind towers to the U.S. market. The main contributing factors to this degree of responsiveness of supply are the availability of unused capacity, the demonstrated ability to increase capacity, and the ability to shift shipments from alternate markets.

Availability of subject imports

When asked to identify any changes in the availability of wind towers from subject countries, three OEMs and *** indicated changes, while *** indicated that there had not been any. *** stated that CS Wind in Vietnam had increased capacity. Similarly, *** indicated that supply had increased to meet demand. On the other hand, *** indicated that there was less supply available from subject countries.

Imports from nonsubject sources

Nonsubject imports accounted for approximately one-sixth of total U.S. imports in 2019. Purchaser/importers reported imports from (in alphabetical order) China, Denmark, India, Italy, Malaysia, Mexico, and Spain.

When asked to identify any changes in the availability of wind towers from nonsubject countries, three OEMs indicated that there had not been any changes, while OEMs *** indicated that availability had risen because of increased capacity and/or increased cost competitiveness.

Supply constraints

Five U.S. producers and five U.S. importers indicated that they had not refused or been unable to supply wind towers since January 1, 2017. *** indicated that it had experienced supply constraints because demand was higher than its capacity. *** stated that it ***. U.S. importer/purchaser *** stated that it has had to decline wind turbine projects because of a lack of wind towers available.

However, when asked if any firm had been unable to supply wind towers to them since January 1, 2017, six U.S. importer/purchasers indicated that they had experienced such an inability to supply, while one indicated that it had not. *** stated that a U.S. producer did

not have the capacity to supply a project, resulting in lost downstream business for ***. *** stated that domestic suppliers have been unable to meet schedule needs *** and have refused to meet certain technical and quality requirements.[12] *** indicated that it had encountered difficulty securing ordered wind towers ***. *** stated that both *** and U.S. suppliers had been unable to devote capacity to its requests. However, Arcosa disputed these allegations, and stated that it had substantial "proven capacity" that was not being used.[13]

New suppliers

Four importer/purchasers indicated that no new suppliers had entered the U.S. market since January 1, 2017. However, *** indicated that CS Wind Corp. Malaysia had entered the U.S. market, and *** identified Windar (Mexico), Windar (Spain), and Speco (Mexico) as new entrants.

U.S. demand

Based on available information, the overall demand for wind towers is likely to experience small changes in response to changes in price, mainly because of the limited range of substitute products and the moderate cost share of wind towers in the final cost of wind turbines, the only product in which wind towers are used. Two key factors driving demand for wind towers are government incentives for wind energy projects and the relative cost of wind-based generation of electricity compared to the costs of other methods of generating electricity.

End uses and cost share

Wind towers are used exclusively in wind turbines to support the nacelles and rotor blades.[14] U.S. producers and importers generally estimated that wind towers accounted for *** percent of the cost of wind turbines.

[12] ***.

[13] Hearing transcript, p. 95 (Cole).

[14] Conference transcript, pp. 16-17 (Janda).

Demand for wind turbines

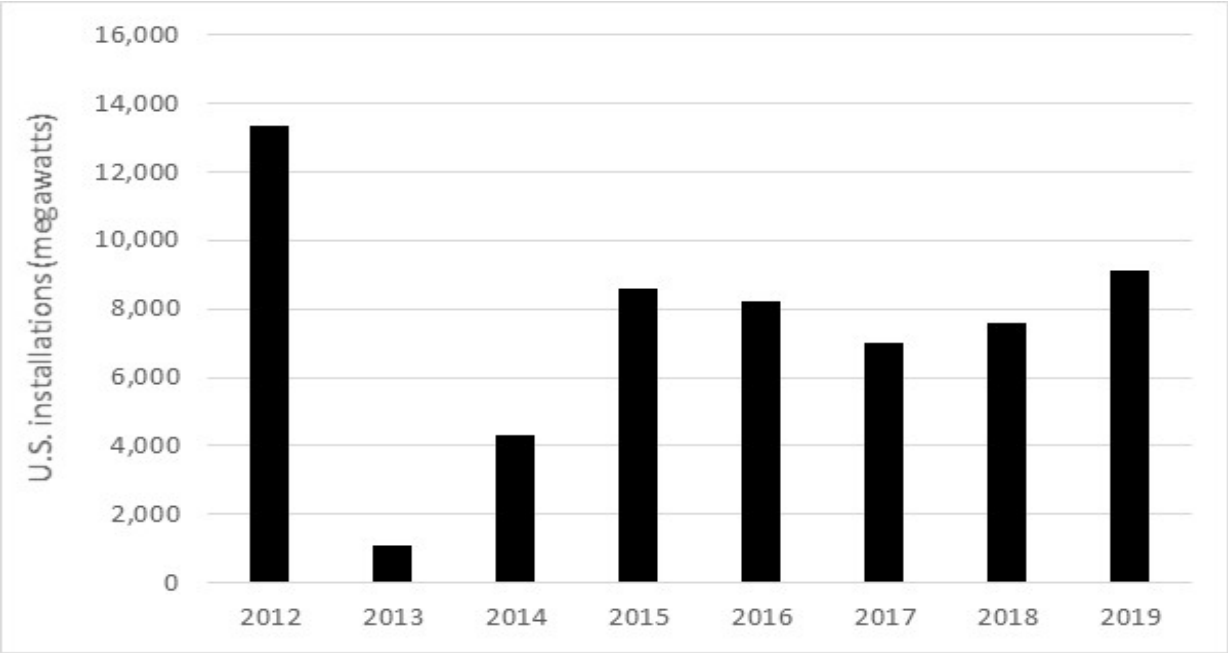
U.S. utility-scale wind turbine installations increased from 7,010 MW in 2017 to 9,132 MW in 2019, an increase of 2,122 MW (figure II-1). Figure II-1 also shows installations from 2012, to show how the low level of installations in 2013 reflected a push by developers to complete projects in 2012, ahead of the expiration of the production tax credit ("PTC"), which is discussed below. In the first quarter of 2020, there were 1,821 MW of installations, up from 841 in the first quarter of 2019.[15] Arcosa stated that industry forecasts for 2020 have demand in the range of 12-13 GW (12-13,000 MW), but for demand to fall to 3 GW per year by 2022.[16] On the other hand, the AWEA and Marmen predicted that wind turbine demand would remain strong because of environmental concerns with conventional energy sources, as well as the decreasing cost of wind energy production.[17]

[15] AWEA, U.S. Wind Industry First Quarter 2020 Market Report, p. 5 https://www.awea.org/resources/publications-and-reports/market-reports/2020-u-s-wind-industry-market-reports-(1)/q12020_public.

[16] Conference transcript, p. 51 (Cole).

[17] Conference transcript, pp. 149-151 (Farrell and Pellerin), Marmen's postconference brief, pp. 25-27, and the AWEA's posthearing brief, pp. 4-5.

Figure II-1
Wind towers: U.S. utility-scale wind turbine installations, 2012-19



Source: AWEA, U.S. Wind Industry First Quarter 2020 Market Report, p. 5 https://www.awea.org/resources/publications-and-reports/market-reports/2020-u-s-wind-industry-market-reports-(1)/q12020_public.

Wind power incentives

The production tax credit ("PTC") is a Federal tax credit per kilowatt-hour (kWh) of wind generation for the first 10 years of a wind project.[18] The PTC, a major factor in wind turbine installations, has been renewed five times since the end of 2012, but each time there was a lapse between the end of the previous PTC and the PTC renewal (table II-3). After each of these lapses, the PTC was retroactively extended. Starting in 2013, projects were eligible for the PTC as long as they started construction prior to the deadline, whereas previously projects had to be completed by the deadline. In December 2019, the PTC was extended through the end of 2020, but the value of the tax credit is not the same in each year.[19] Projects begun in a given

[18] *Utility Scale Wind Towers from China and Vietnam, Inv. Nos. 701-TA-486 and 731-TA-1195-1196 (Review),* USITC Publication 4888, April 2019, p. II-8.

[19] *Utility Scale Wind Towers from China and Vietnam, Inv. Nos. 701-TA-486 and 731-TA-1195-1196 (Review),* USITC Publication 4888, April 2019, p. II-8, and Congressional Research Service, *The Renewable Electricity Production Tax Credit: In Brief*, April 29, 2020, pp. 4-5.

year may take five years to complete.[20] Additionally, in May 2020, due to the COVID-19 outbreak, these incentives were extended (given "safe harbor") to allow projects an additional year to begin construction in order to qualify.[21]

Table II-3
Wind towers: Recent history of the production tax credit (PTC)

Legislation	Date enacted	Start of PTC window	End of PTC window	Notes
The American Recovery and Reinvestment Act of 2009	2/17/2009	1/1/2010	12/31/2012	
2-day lapse before expired PTC was extended				
American Taxpayer Relief Act of 2012	1/2/2013	1/1/2013	Start construction by 12/31/2013	
>11-month lapse before expired PTC was extended				
Tax Increase Prevention Act of 2014	12/19/2014	1/1/2014	Start construction by 12/31/2014	
>11-month lapse before expired PTC was extended				
Consolidated Appropriations Act of 2016	12/18/2015	1/1/2015	Start construction by 12/31/2016	100% PTC value
			Start construction by 12/31/2017	80% PTC value
			Start construction by 12/31/2018	60% PTC value
			Start construction by 12/31/2019	40% PTC value
>11-month lapse before expired PTC was extended				
Further Consolidated Appropriations Act of 2020	12/20/2019	1/1/2018	Start construction by 12/31/2020	40% PTC value for 2019 projects; 60% PTC value for 2020 projects

Source: *Utility Scale Wind Towers from China and Vietnam*, *Inv. Nos. 701-TA-486 and 731-TA-1195-1196 (Review*), USITC Publication 4888, April 2019, p. II-9, and Congressional Research Service, *The Renewable Electricity Production Tax Credit: In Brief*, April 29, 2020, pp. 4-5.

Wind projects were also made eligible for the investment tax credit ("ITC", a tax credit equal to 30 percent of a project's cost) in 2009, and each renewal of the PTC also included a renewal of wind's eligibility for the ITC. The ITC incentive levels for wind projects scaled down at the same rate as the PTC after 2016 and will be 18 percent for wind projects begun between December 2019 and January 1, 2021.[22]

Additionally, the wind industry benefits from accelerated depreciation. Under the Modified Accelerated Cost-Recovery System (MACRS), wind projects are classified as five-year

[20] Marmen's prehearing brief, pp. 16-17.

[21] GE's prehearing brief, p. 11 and exhibit 5. Hearing transcript, p. 150 (Long). The wind towers industry has been deemed essential during the lockdown. Hearing transcript, p. 66 (Cole).

[22] *Utility Scale Wind Towers from China and Vietnam*, *Inv. Nos. 701-TA-486 and 731-TA-1195-1196 (Review),* USITC Publication 4888, April 2019, p. II-8. See also email from Amy Sherman, on behalf of petitioners, May 15, 2020.

property, which allows depreciation over a shorter time period. The Economic Stimulus Act of 2008 made wind projects eligible for 50 percent depreciation in the first year (known as bonus depreciation). Bonus depreciation for wind was subsequently renewed several times, with first year depreciation ranging from 50 to 100 percent. According to current rules, wind projects completed by the end of 2017 were eligible for 50 percent first year bonus depreciation, while projects completed in 2018 are eligible for 40 percent and projects completed in 2019 are eligible for 30 percent.[23] The December 2019 renewal of the PTC also allows MACRS to continue to apply to wind projects.[24]

Five U.S. producers and six importer/purchasers stated that the anticipated expiration of the PTC at the end of 2019 had had an impact on the market for wind towers. U.S. producers and importer/purchasers were then asked to indicate the impact of the anticipated expiration of the PTC in five areas, as shown in table II-4. Firms generally described the PTC expiration as increasing demand and production/acquisition of wind towers, in turn causing fluctuating prices. Firms expressed a wider variety of answers in response to other areas.

Table II-4
Wind towers: Firms' responses regarding the impact of the anticipated expiration of the PTC

Item	Increase	No change	Decrease	Fluctuate
Production/acquisition of wind towers by your firm				
U.S. producers	3	--	2	--
Importer/purchasers	3	1	2	1
Financial performance of your firm				
U.S. producers	1	1	2	1
Importer/purchasers	2	1	2	2
Demand for wind towers in the U.S. market				
U.S. producers	4	--	1	--
Importer/purchasers	3	--	2	2
Prices for wind towers in the U.S. market				
U.S. producers	1	--	1	3
Importer/purchasers	1	1	1	4
Timing for U.S. wind energy projects in the development pipeline				
U.S. producers	1	1	--	3
Importer/purchasers	1	3	1	2

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

[23] *Utility Scale Wind Towers from China and Vietnam*, *Inv. Nos. 701-TA-486 and 731-TA-1195-1196 (Review)*, USITC Publication 4888, April 2019, p. II-8.

[24] Email from Amy Sherman, on behalf of petitioners, May 15, 2020.

In additional comments, U.S. producers *** expected that the PTC expiration would increase wind tower demand through 2021 and 2024 respectively. However, U.S. producers *** stated that despite the PTC, they faced lower prices or less demand for their products due to competition with subject imports. *** also projected that wind tower demand would peak in 2021 and then fall in the following years. Importer/purchasers *** anticipated more demand because of the PTC expiration (leading to an increase in short-term demand). Importer/purchaser *** described the demand increase as leading to cost increases from its suppliers. *** stated that demand for wind towers would increase but would be offset somewhat by its customers trying to add fewer but larger towers in their projects.

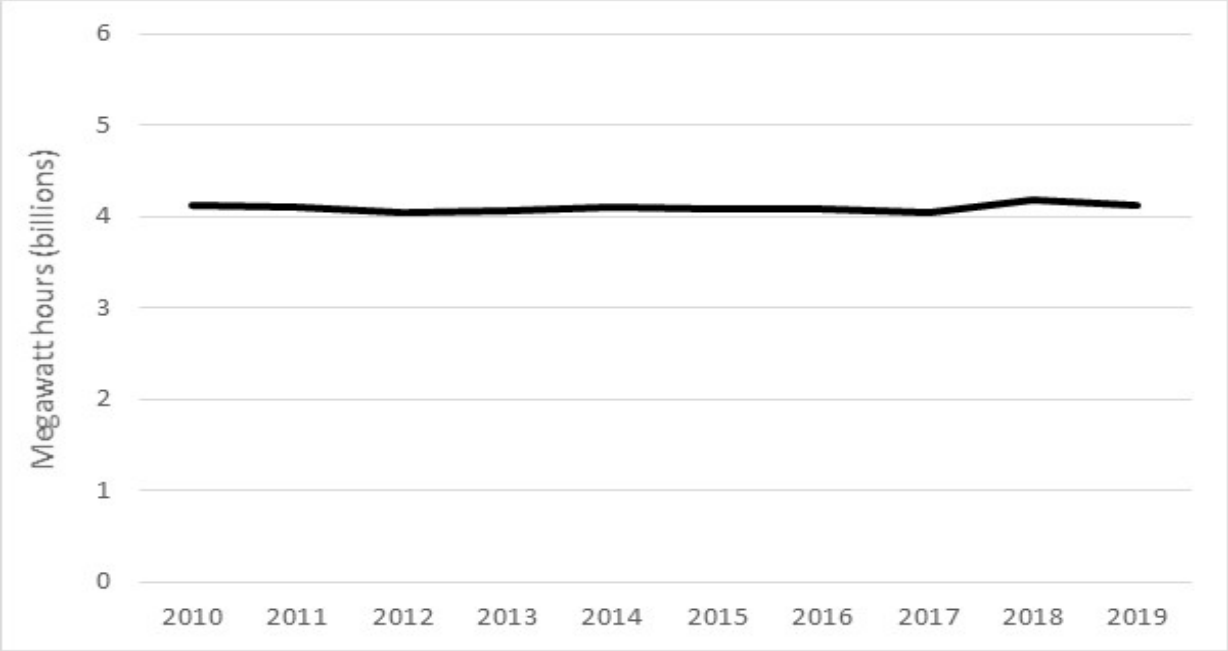
There are also various State incentives for wind power installations, including renewable portfolio standards ("RPS"), which require utilities to source a certain share of energy from renewable sources by a specified date. There were mandatory renewable portfolio standards in 29 States and the District of Columbia in May 2019, the same number as in June 2013.[25]

Wind-generated electricity demand

Demand for electricity from any source is one driver of the demand for wind-generated electricity specifically. U.S. electricity demand has been generally stable over the past decade, between 4.0 and 4.2 billion megawatt-hours per year (figure II-2).

[25] *Utility Scale Wind Towers from China and Vietnam, Inv. Nos. 701-TA-486 and 731-TA-1195-1196 (Review),* USITC Publication 4888, April 2019, p. II-9, and U.S. Department of Energy, *2018 Wind Technologies Report*, p. xii.

Figure II-2
U.S. electric power generation, 2010-19

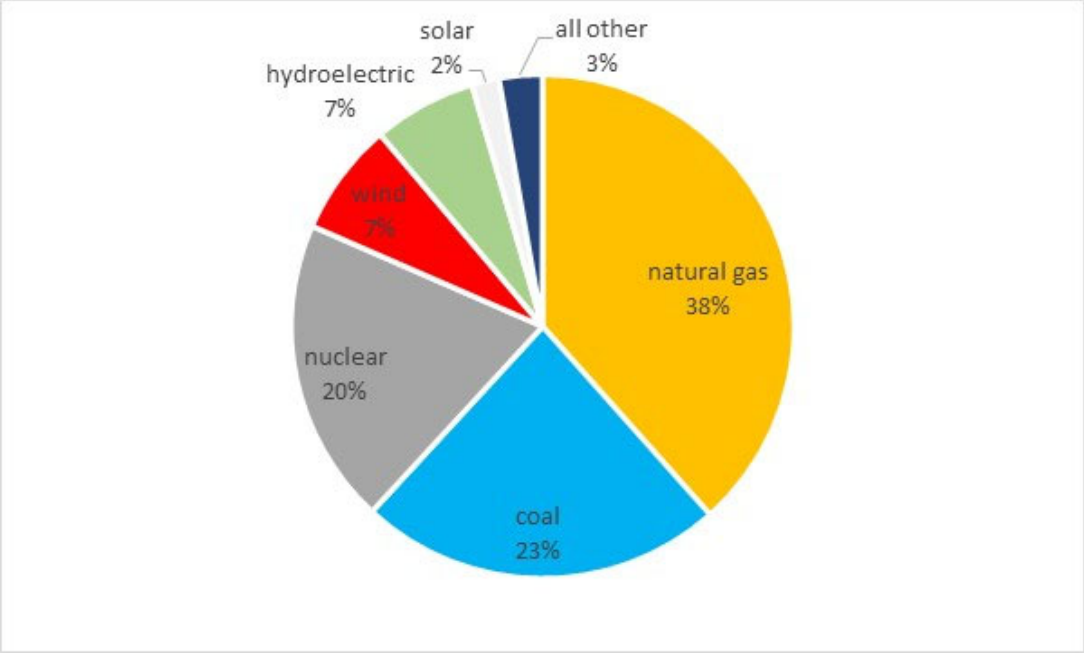


Source: U.S Energy Information Administration, "Net Generation by Energy Source", https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_1_01 , May 5, 2020.

Electricity demand in the United States is supplied primarily by conventional sources,[26] with coal and natural gas accounting for almost two-thirds of all U.S. electricity generated in 2019 (figure II-3). Wind energy accounted for 7 percent of total electricity generated in 2019. Although currently a small portion of the electrical grid, the share of electricity generated from renewable energy sources, such as wind, has been steadily increasing. Wind accounted for 40 percent of all new electric generating capacity installed in the United States in 2019 (figure II-4).

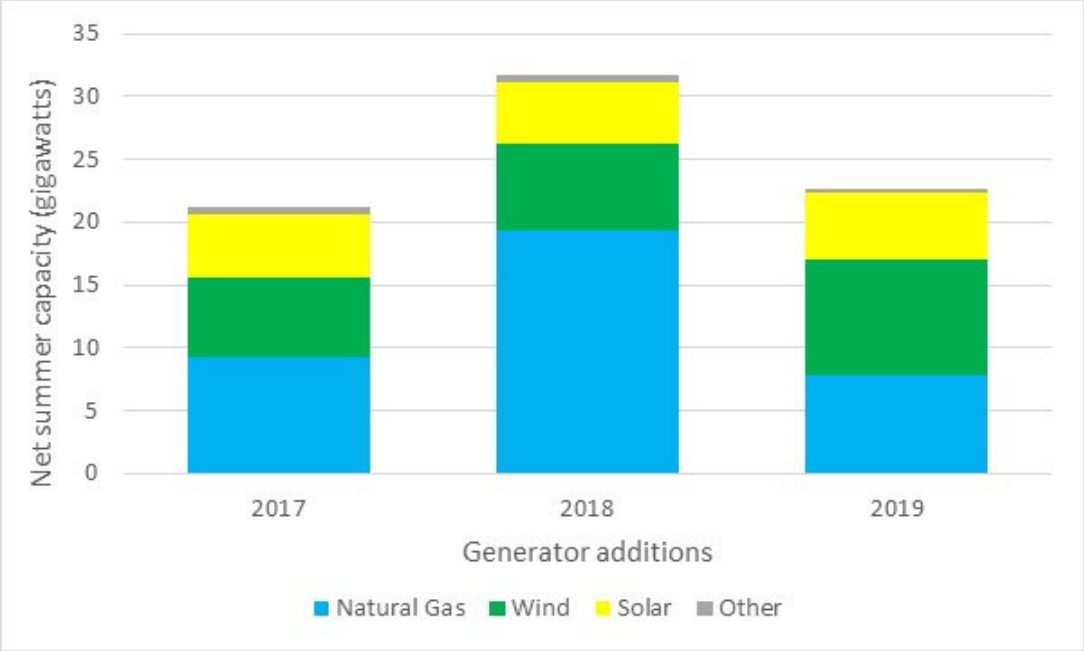
[26] See also *Utility Scale Wind Towers from China and Vietnam*, *Inv. Nos. 701-TA-486 and 731-TA-1195-1196 (Review)*, USITC Publication 4888, April 2019, p. II-1.

Figure II-3
Net U.S. electricity generation, by sector, 2019



Source: U.S. Energy Information Administration, https://www.eia.gov/electricity/data/browser/, retrieved May 5, 2020.

Figure II-4
New U.S. electrical generating capacity by type, yearly, 2017-19



Source: U.S. Energy Information Administration, Electric Power Annual 2017–18, Table 4.6, October 18, 2019, and October 22, 2018, https://www.eia.gov/electricity/annual/; and EIA, Electric Power Monthly, Table 6.3, February 2020, https://www.eia.gov/electricity/monthly/.

Another factor affecting wind energy demand is the cost of competing sources of energy. One measure of the competitiveness of energy sources is the levelized cost of energy ("LCOE").[27] The Energy Information Administration's (EIA) estimates of the average LCOE for new plants entering service in 2023 are shown in table II-5. When tax credits were included, new onshore wind installations had a lower estimated LCOE ($36.6/MWh) compared to other sources including geothermal, solar, and natural gas.[28]

Table II-5
Estimated U.S. capacity-weighted average LCOE for plants entering service in 2023 (2018 $/MWh)

Item	Total system LCOE	Levelized tax credit	Total system LCOE including tax credits
Wind, onshore	42.8	-6.1	36.6
Geothermal	39.4	-2.5	36.9
Solar PV	48.8	-11.1	37.6
Hydroelectric	39.1	0	39.1
Natural gas-fired: Advanced	40.2	0	40.2
Conventional combined cycle	42.8	0	42.8
Advanced combustion turbine	77.5	0	77.5
Biomass	92.1	0	92.1
Wind, offshore	117.9	-11.5	106.5

Note.--EIA notes that "Technologies for which capacity additions are not expected do not have a capacity-weighted average."

Source: *Utility Scale Wind Towers from China and Vietnam, Inv. Nos. 701-TA-486 and 731-TA-1195-1196 (Review)*, USITC Publication 4888, April 2019, Table II-5.

Prices for wind-generated electricity have declined steadily since 2010 and have continued to decline since 2017. Average capacity-weighted power purchase agreement ("PPA") prices declined from $39/MWh for those signed in 2012 to $17/MWh for those signed in 2017 (table II-6). According to the DOE, these record-low levels are attributable to declining costs, improved performance, historically low (but rising) interest rates, and natural gas prices.[29] Since 2010, natural gas electric power prices have fluctuated while declining overall (table II-7). Natural gas electric power prices have continued declining in 2020 and were $2.20

[27] LCOE represents the per-kilowatt hour cost of building and operating a generated plant over an assumed financial life and duty cycle. *Utility Scale Wind Towers from China and Vietnam*, *Inv. Nos. 701-TA-486 and 731-TA-1195-1196 (Review)*, USITC Publication 4888, April 2019, p. II-10. See also AWEA's prehearing brief, pp. 4-5, and posthearing brief, pp. 4-5.

[28] *Utility Scale Wind Towers from China and Vietnam, Inv. Nos. 701-TA-486 and 731-TA-1195-1196 (Review), USITC Publication 4888*, April 2019, pp. II-10-11.

[29] *Utility Scale Wind Towers from China and Vietnam*, *Inv. Nos. 701-TA-486 and 731-TA-1195-1196 (Review)*, USITC Publication 4888, April 2019, pp. II-11-12.

per thousand cubic feet in April 2020.[30] GE described competition with other sources of energy as setting a ceiling on turbine prices, and in turn, wind tower prices.[31]

Table II-6
Nationwide power purchase agreement ("PPA") prices for wind-generated electricity, by date of PPA signing, 2010-18

PPA execution year	$/MWh
2010	62.88
2011	45.49
2012	38.87
2013	28.34
2014	25.47
2015	29.83
2016	26.73
2017	17.32
2018	11.11

Source: *Wind Technologies Market Report, 2018*. Data File, exhibit 54.
https://emp.lbl.gov/sites/default/files/2018_wtmr_data_file.xlsx

Table II-7
Natural gas: U.S. natural gas electric power price

Year	Dollars per thousand cubic feet
2010	5.27
2011	4.89
2012	3.54
2013	4.49
2014	5.19
2015	3.38
2016	2.99
2017	3.51
2018	3.68
2019	2.98

Source: *U.S. Energy Information Administration,* https://www.eia.gov/dnav/ng/hist/n3045us3A.htm, accessed May 5, 2020.

Business cycles

Four U.S. producers and five importers indicated that the wind tower market was subject to business cycles or other distinctive conditions of competition. Most of these U.S. producers and importers indicated that the PTC, and/or its anticipated phase-out in 2019 and then renewal, was a strong driver of increased demand expected in 2020. U.S. importer/purchaser *** added that U.S. wind turbine demand (a principal driver of wind tower

[30] See AWEA's prehearing brief, pp. 12-13. U.S. Energy Information Administration, Natural Gas Electric Power Price, https://www.eia.gov/dnav/ng/ng_pri_sum_a_EPG0_PEU_DMcf_m.htm , downloaded July 16, 2020.

[31] Hearing transcript, p. 232 (Long).

demand) is affected by U.S. energy demand, the U.S. price of natural gas, state renewable portfolio standards, and wind energy demand in foreign markets (which affects the supply and demand of wind turbines). *** also described solar technology and low natural gas prices (as both are substitutes for wind energy) as affecting the U.S. market for wind towers.[32] However, two U.S. producers and two importer/purchasers indicated that the wind tower market was not subject to unique business cycles.

Five U.S. producers and five importers indicated that there had been changes to the business cycle for wind towers since January 1, 2017, generally citing the PTC. Other firms cited the same issues noted above, i.e., seasonal variation and import increases. In addition to PTC renewal, *** described increased investment by tower manufacturers and component makers to support increased demand. One importer/purchaser indicated that there had not been any changes to the business cycle.

Demand trends

Most U.S. producers and importers described U.S. demand for wind towers as having increased or fluctuated since January 1, 2017 (table II-8). *** U.S. producers and *** importers indicated that at least one reason for U.S. demand trends was the PTC and/or increased wind tower purchases in anticipation of the expected PTC expiration that will begin in 2020. Other reasons cited for changes in U.S. demand included the decreasing levelized cost of energy for wind-generated electricity, as well as increased demand for renewable energy. U.S. importer *** indicated that the antidumping and countervailing duty orders on wind towers from China and Vietnam had increased U.S. demand for Indonesian and Korean wind towers as alternate sources.

Most responding U.S. producers described demand outside the United States as fluctuating, while most importers described it as increasing. Reasons cited for the trends in demand outside the United States included the decreasing levelized cost of energy for wind-generated electricity, European and Australian government policies to promote wind energy, increased demand in the Asian/Pacific region, and an increased interest in renewable energy. Petitioners characterized certain countries' markets as "closed to exports" because of local

[32] In terms of seasonal variation in the business cycle, most U.S. producers and importers did not mention such variation, but U.S. producer *** indicated that customers used to spread their demand out over an entire year, but now align orders with specific project needs, resulting in lower demand in the fourth quarter of years. In contrast, U.S. importer *** stated that there are usually more installations in the third and fourth quarters of the year.

content requirements.[33] They added that demand in Canada had decreased substantially of late.[34]

Table II-8
Wind towers: Firms' responses regarding U.S. demand and demand outside the United States

Item	Increase	No change	Decrease	Fluctuate
Demand in the United States				
U.S. producers	5	---	---	1
Importer/purchasers	5	---	---	2
Demand outside the United States				
U.S. producers	2	---	---	3
Importer/purchasers	5	1	---	1

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

Forecasts of future demand vary according to forecasters' assessments of the effects of falling wind energy costs compared to falling natural gas costs, as well as the effects of the expiring, while still extended, government incentives. Arcosa stated that, due to the anticipated expiration of the PTC, industry economists forecast a fall in wind towers demand of 50 percent in 2021 and 2022.[35] However, GE forecast that wind tower demand would remain robust for the next few years, due to the recent extension of the PTC and the May 2020 safe harbor, as well as wind energy's increasing competitiveness with other forms of energy.[36] Vestas also forecast stronger demand in 2020-22, and estimated that U.S. wind tower production would not be able to serve three to five gigawatts of wind energy demand in 2020 and 2021.[37] The AWEA also forecast strong demand in the next several years, citing incentives (including state RPS) and wind energy competitiveness, and stated that in December 2019, there were 44 GW of U.S. wind energy projects in construction or in advanced development (compared to a current 107 GW of currently operating projects).[38]

[33] Petitioners specifically cited Brazil, Canada, and China. Conference transcript, p. 83 (Price), petitioners' postconference brief, answers to staff questions, pp. 37-38, and petitioners' posthearing brief, p. 74.

[34] Conference transcript, p. 57 (Price).

[35] Hearing transcript, pp. 67-68 (Cole). AWEA disagreed with this assessment. See AWEA posthearing brief, p. 9.

[36] Hearing transcript, p. 150 (Long).

[37] Hearing transcript, p. 153 (Choy).

[38] Hearing transcript, p. 142 (Stern). See also AWEA prehearing brief, pp. 19-20, and AWEA, *Wind Powers America, First Quarter 2020 Report*, slides 3 and 6.

Substitute products

Direct substitutes for wind towers are very limited, but considering downstream markets, one market participant named other methods of electricity generation (besides wind) as substitutes for wind-generated electricity. In the preliminary phase of these investigations, six U.S. producers and five importers reported that there were no substitutes for wind towers. *** named concrete towers as a potential substitute that could support nacelles and rotors but indicated that concrete tower prices had not affected wind tower prices. *** stated that it was ***. It also named alternate electricity generating technologies, including gas turbines, solar electricity generators, and hydroelectric generators as substitute methods of electricity generation. It added that low natural gas prices due to shale gas production had placed price pressure on wind energy electricity generation.

Substitutability issues

The degree of substitution between domestic and imported wind towers depends upon such factors as relative prices, quality (e.g., grade standards, defect rates, etc.), and conditions of sale (e.g., price discounts/rebates, lead times between order and delivery dates, reliability of supply, product services, etc.). Based on available data, staff believes that there is a moderate-to-high degree of substitutability between domestically produced wind towers and wind towers imported from Canada, Indonesia, Korea, and Vietnam. In general, wind towers produced to the same specifications by an OEM-qualified manufacturer are interchangeable to the wind turbine OEM,[39] but purchaser/importers often described factors other than price, including transportation costs and availability, as very important in comparing U.S.-produced wind towers to wind towers imported from subject countries.

Lead times

Wind towers are primarily produced-to-order. All responding U.S. producers and importers reported that 100 percent of their commercial shipments were produced-to-order. U.S. producers reported lead times between 100 to 270 days, while importers reported lead times between 155 to 270 days.

[39] ***. See GE's prehearing brief, p. 22.

Knowledge of country sources

Four importer/purchasers indicated that they had knowledge of U.S. wind towers, three indicated knowledge of Canadian wind towers, five indicated knowledge of Indonesian wind towers, five indicated knowledge of Korean wind towers, four indicated knowledge of Vietnamese wind towers, and five indicated knowledge of wind towers from a wide range of other countries. The four largest importer/purchasers had generally either imported, purchased, or received bids from suppliers in the United States and all subject countries, although *** had no such connection with Canadian or Vietnamese suppliers, *** had no such connection with Indonesian suppliers, and *** had no such connection with Korean suppliers.

As shown in table II-9, most importer/purchasers and their customers never make purchasing decisions based on the producer or country of origin, although importer/purchasers were split between always and never when it came to basing imports or purchases from a particular producer. *** stated that it makes decisions based on its experience with a supplier, but stated that its customers are not interested in the supplier of the wind tower. *** stated that it ***. *** stated that its customer prefers wind towers from ***.

Table II-9
Wind towers: Purchasing decisions based on producer and country of origin

Purchaser/customer decision	Always	Usually	Sometimes	Never
Purchaser makes decision based on producer	3	---	1	3
Purchaser's customers make decision based on producer	1	---	2	3
Purchaser makes decision based on country	2	---	---	5
Purchaser's customers make decision based on country	1	---	---	5

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

Factors affecting purchasing decisions

The most often cited top three factors firms consider in their purchasing decisions for wind towers were availability, quality, and price, as shown in table II-10. Availability was the most frequently cited first-most important factor (cited by four firms). Quality and price were the most frequently reported second-most and third-most important factors (cited by two firms each, for each of second and third most important factor. *** rated total delivered cost, rather than price, as an important factor.

Table II-10
Wind towers: Ranking of factors used in purchasing decisions as reported by U.S. purchasers, by factor

Factor	First	Second	Third	Total
Availability/capacity	4	1	0	5
Quality	1	2	2	5
Price	0	2	2	4
Total delivered cost	0	0	1	1

Note: As other, additional factors, *** listed manufacturing expertise, closest manufacturing location to customer site, best mode of transportation available to get towers to site, and transportation restrictions due to winter weather regulations.
Note: Importer/purchasers were asked what characteristics they consider when determining the quality of wind towers. They described meeting specifications, manufacturing facility, manufacturing equipment, supplier experience, weld quality, and paint quality.

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

Among the OEM importer/purchasers, three (***) reported that they usually purchase the lowest-priced product, and two (***) reported that they sometimes do. Importer/purchaser *** indicated that it never does so.

Five U.S. importer/purchasers indicated that there were no specific types of wind towers that were available from only certain country sources. However, *** stated that ***.

Importance of specified purchase factors

Importer/purchasers were asked to rate the importance of 17 factors in their purchasing decisions (table II-11). The factors rated as very important by at least 4 responding importer/purchasers were availability, delivery terms, delivery time, payment terms, price, product consistency, product range, quality (both meeting and exceeding industry standards), reliability of supply, and U.S. transportation costs.

Table II-11
Wind towers: Importance of purchasing factors, as reported by U.S. purchasers, by factor

Factor	Very important	Somewhat important	Not important
Availability	6	---	---
Delivery terms	4	1	1
Delivery time	6	---	---
Design support (e.g., should-cost modeling, ongoing redesign support, product testing, etc.)	1	1	3
Discounts offered	1	3	1
Minimum quantity requirements	2	2	2
Mode of transportation offered (e.g., rail, truck, vessel)	1	2	2
Packaging	1	3	1
Payment terms	4	1	---
Price	4	1	---
Product consistency	5	1	---
Product range	4	1	1
Quality meets industry standards	6	---	---
Quality exceeds industry standards	6	---	---
Reliability of supply	6	---	---
Technical support/service	3	2	---
U.S. transportation costs	5	---	---

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

Supplier certification

*** OEM importer/purchasers require their suppliers to become certified or qualified to sell wind towers to their firm. (Importer/purchasers *** do not). OEMs reported that the time to qualify a new supplier ranged from 30 to 365 days. *** described their processes as involving an initial assessment and then a technical review/audit, examining issues of quality, reliability, and/or history of providing wind towers. (Each firm reported some unique qualification processes as well.) Six importer/purchasers reported that no domestic or foreign supplier had failed in its attempt to qualify wind towers, nor had lost its approved status since 2017. However, *** stated that certain U.S. producers had not been able to meet its technical requirements or purchasing terms.[40]

Changes in purchasing patterns

*** importer/purchasers reported that they had changed suppliers since January 1, 2017, while *** reported that they

[40] ***.

had not. *** stated that it shifts suppliers based on project location. *** stated that it has added suppliers to meet increased demand. *** stated that it added *** suppliers in 2019 ***. It continued that U.S. supply was not available in sufficient quantity in that region. *** stated that it added domestic, Korean, Indonesian, and Mexican suppliers to "support competition" and meet increased demand.

Purchasers were asked about changes in their purchasing patterns from different sources since 2017 (table II-12); reasons reported for changes in sourcing included increased demand, the status of the PTC and ITC, and the location of various suppliers near projects. *** indicated that its share of purchases from U.S. producers ***.

Table II-12
Wind towers: Changes in purchase patterns from U.S., subject, and nonsubject countries

Source of purchases	Did not purchase	Decreased	Increased	Constant	Fluctuated
United States	3	---	2	---	2
Canada	5	1	---	1	---
Indonesia	3	2	1	---	1
Korea	4	1	---	2	---
Vietnam	4	1	1	---	1
All other countries	3	---	3	---	1

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

Importance of purchasing domestic product

All six responding importer/purchasers reported that almost all or all of their purchases did not require purchasing U.S.-produced product. *** reported that Michigan-produced product was purchased for a portion of a Michigan-based project "in support of" the Michigan economy and workforce. The other five responding importer/purchasers indicated that none of their purchases had any domestic product requirement.

Comparisons of domestic products, subject imports, and nonsubject imports

Importer/purchasers were asked a number of questions comparing wind towers produced in the United States, subject countries, and nonsubject countries. First, importer/purchasers were asked for a country-by-country comparison on the same 17 factors (table II-13) for which they were asked to rate the importance.

Most importer/purchasers reported that U.S. and subject wind towers were comparable on most factors, although half or more of responding importer/purchasers indicated that U.S.

suppliers were inferior to subject country suppliers in payment terms and price, and that U.S. suppliers were inferior to Indonesian and Korean suppliers in availability. A majority of purchasers ranked U.S. product inferior to Vietnamese product in terms of product consistency, product range, and quality exceeding industry standards.

Table II-13
Wind towers: Importer/purchasers' comparisons between U.S.-produced and imported product

Factor	U.S. vs. Canada			U.S. vs. Indonesia			U.S. vs. Korea		
	S	C	I	S	C	I	S	C	I
Availability	---	2	---	---	1	2	---	2	2
Delivery terms	---	2	---	---	2	1	---	3	1
Delivery time	1	1	---	1	1	1	1	2	1
Design support (e.g., should-cost modeling, ongoing redesign support, product testing, etc.)	---	2	---	---	3	---	---	4	---
Discounts offered	---	1	1	---	---	1	---	3	---
Minimum quantity requirements	---	2	---	---	3	---	---	4	---
Mode of transportation offered (e.g., rail, truck, vessel)	---	2	---	---	3	---	1	3	---
Packaging	---	2	---	---	3	---	---	4	---
Payment terms	---	1	1	---	1	2	---	2	2
Price	---	1	1	---	1	2	---	1	3
Product consistency	---	1	1	---	2	1	---	3	1
Product range	---	1	1	---	2	1	---	3	1
Quality meets industry standards	---	1	1	---	2	1	---	3	1
Quality exceeds industry standards	---	1	1	---	2	1	---	2	2
Reliability of supply	---	2	---	---	3	---	---	4	---
Technical support/service	---	2	---	---	3	---	---	4	---
U.S. transportation costs	---	2	1	---	3	---	---	3	1

Table continued on next page.

Table II-13--Continued
Wind towers: Importer/purchasers' comparisons between U.S.-produced and imported product

Factor	U.S. vs. Vietnam			U.S. vs. All other countries		
	S	C	I	S	C	I
Availability	---	2	1	---	2	---
Delivery terms	---	2	1	---	2	---
Delivery time	1	1	1	1	1	---
Design support (e.g., should-cost modeling, ongoing redesign support, product testing, etc.)	---	2	---	---	2	---
Discounts offered	---	1	1	---	2	---
Minimum quantity requirements	---	2	1	---	2	---
Mode of transportation offered (e.g., rail, truck, vessel)	---	2	---	---	2	---
Packaging	---	2	---	---	2	---
Payment terms	---	1	1	---	1	1
Price	---	1	1	---	1	1
Product consistency	---	1	2	---	2	---
Product range	---	1	2	---	1	1
Quality meets industry standards	---	2	1	---	2	---
Quality exceeds industry standards	---	1	2	---	2	---
Reliability of supply	---	2	1	---	2	---
Technical support/service	---	2	---	---	2	---
U.S. transportation costs	---	1	1	---	1	1

Note: A rating of superior means that price/U.S. transportation cost is generally lower. For example, if a firm reported "U.S. superior," it meant that the U.S. product was generally priced lower than the imported product.
Note: S=first listed country's product is superior; C=both countries' products are comparable; I=first list country's product is inferior.

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

Comparison of U.S.-produced and imported wind towers

In order to determine whether U.S.-produced wind towers can generally be used in the same applications as imports from Canada, Indonesia, Korea, and Vietnam, U.S. producers and importer/purchasers were asked whether the products can always, frequently, sometimes, or never be used interchangeably. As shown in table II-14, a majority of U.S. producers and importer/purchasers indicated that wind towers from all sources are always interchangeable with wind towers from other sources.

Table II-14
Wind towers: Interchangeability between wind towers produced in the United States and in other countries, by country pair

Country pair	Number of U.S. producers reporting				Number of importer/purchasers reporting			
	A	F	S	N	A	F	S	N
U.S. vs. subject countries:								
U.S. vs. Canada	4	1	1	---	4	---	1	---
U.S. vs. Indonesia	4	2	---	---	5	---	1	---
U.S. vs. Korea	4	2	---	---	5	---	1	---
U.S. vs. Vietnam	4	2	---	---	4	---	1	---
Subject countries comparisons:								
Canada vs. Indonesia	4	1	1	---	4	---	1	---
Canada vs. Korea	4	1	1	---	4	---	1	---
Canada vs. Vietnam	4	1	1	---	4	---	1	---
Indonesia vs Korea	4	2	---	---	3	---	1	---
Indonesia vs. Vietnam	4	2	---	---	3	---	1	---
Korea vs. Vietnam	4	2	---	---	4	---	1	---
Nonsubject countries comparisons:								
U.S. vs. nonsubject	4	2	---	---	4	---	1	---
Canada vs. nonsubject	4	1	1	---	4	---	1	---
Indonesia vs. nonsubject	4	2	---	---	3	---	1	---
Korea vs. nonsubject	4	2	---	---	4	---	1	---
Vietnam vs. nonsubject	4	2	---	---	4	---	1	---

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

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

In additional comments, U.S. producer *** stated that *** sells two types of subject imports in the United States: ***. It stated that the *** are not interchangeable with *** wind towers produced by U.S. producers. U.S. importer/purchaser *** stated that once a wind tower is made to its specifications, it is interchangeable no matter what the source of it is. However, it added that not all suppliers can make all specifications and stated that it had experienced quality difficulties with wind towers from U.S. producers ***. It added that, because of high transportation and logistics costs, it seeks to obtain wind towers from sources (ports or factories) close to the installation site.

As can be seen from table II-15, three responding purchasers reported that domestically produced product always met minimum quality specifications. Three responding purchasers reported that Canadian wind towers always met minimum quality specifications, five that Indonesia wind towers did, four that Korean wind towers did, and four that Vietnamese wind towers did.

Table II-15
Wind towers: Ability to meet minimum quality specifications, by source

Source	Always	Usually	Sometimes	Rarely or never
United States	3	2	---	---
Canada	3	1	---	---
Indonesia	5	---	---	---
Korea	4	---	---	---
Vietnam	4	---	---	---
All other	3	---	---	---

Note: Purchasers were asked how often domestically produced or imported wind towers meets minimum quality specifications for their own or their customers' uses. All other includes Malaysia, Mexico, and Spain.

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

In addition, U.S. producers, importers, and purchasers were asked to assess how often differences other than price were significant in sales of wind towers from the United States, subject, or nonsubject countries. As seen in table II-16, most U.S. producers indicated that factors other than price were sometimes or never significant in sales of wind towers from all sources, while most importer/purchasers usually indicated that non-price factors were always or frequently significant.

Table II-16
Wind towers: Significance of differences other than price between wind towers produced in the United States and in other countries, by country pair

Country pair	Number of U.S. producers reporting				Number of importer/purchasers reporting			
	A	F	S	N	A	F	S	N
U.S. vs. subject countries:								
U.S. vs. Canada	1	1	2	2	3	1	---	---
U.S. vs. Indonesia	---	---	2	2	2	3	---	---
U.S. vs. Korea	1	---	2	2	3	1	1	---
U.S. vs. Vietnam	1	---	2	2	3	1	---	---
Subject countries comparisons:								
Canada vs. Indonesia	---	1	2	2	2	---	1	---
Canada vs. Korea	1	1	2	2	3	---	1	---
Canada vs. Vietnam	1	1	2	2	3	---	1	---
Indonesia vs Korea	---	---	2	2	2	---	2	---
Indonesia vs. Vietnam	---	---	2	2	2	---	1	---
Korea vs. Vietnam	1	---	2	2	3	---	1	---
Nonsubject countries comparisons:								
U.S. vs. nonsubject	1	---	2	2	3	---	1	---
Canada vs. nonsubject	1	1	2	2	3	---	1	---
Indonesia vs. nonsubject	---	---	2	2	2	---	1	---
Korea vs. nonsubject	1	---	2	2	3	---	1	---
Vietnam vs. nonsubject	1	---	2	2	3	---	1	---

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

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

In additional comments, U.S. producer *** identified transportation, capacity planning, and product range as significant factors. U.S. producer *** stated that *** awarded Marmen for high quality service beyond market pricing. It added that ***. It added that other suppliers are not able to offer all these shipping and storage methods. Importer/purchaser *** stated that quality, on-time performance, and reliability have been key factors in wind tower sales. Importer/purchaser *** indicated that availability capacity, production pace, and flexibility have been significant purchasing factors in comparing U.S. wind towers to those from Indonesia and Korea. It added that, in comparing Indonesian and Korean products, transportation costs were higher from Indonesia, but Indonesian suppliers offered offsets to these costs. Importer/purchaser *** reiterated its above comments on interchangeability and added that transportation costs and on-time supply are essential considerations. It also considered that

delivery performance by certain *** suppliers to be superior to that of U.S. producers.

Elasticity estimates

This section discusses elasticity estimates; parties were encouraged to comment on these estimates. Respondents commented on the U.S. supply elasticity in their prehearing brief, as discussed below.

U.S. supply elasticity

The domestic supply elasticity for wind towers measures the sensitivity of the quantity supplied by U.S. producers to changes in the U.S. market price of wind towers. The elasticity of domestic supply depends on several factors including the level of excess capacity, the ease with which producers can alter capacity, producers' ability to shift to production of other products, the existence of inventories, and the availability of alternate markets for U.S.-produced wind towers. Analysis of these factors, based on data from the U.S. producers, above indicates that the U.S. industry has the ability to increase shipments to the U.S. market; an estimate in the range of 3 to 6 was suggested in the prehearing staff report. Respondents stated in their prehearing brief that record evidence suggests some U.S. capacity restrictions.[41] In order to take into account this possibility, along with changed staff analysis of the U.S. industry's ability to respond to changes in price, staff has revised its estimate of the elasticity of U.S. supply to 2 to 5, allowing for a lower minimum depending on the state of U.S. capacity utilization.

U.S. demand elasticity

The U.S. demand elasticity for wind towers measures the sensitivity of the overall quantity demanded to a change in the U.S. market price of wind towers. This estimate depends on factors discussed above such as the existence, availability, and commercial viability of substitute products, as well as the component share of the wind towers in the production of any downstream products. Based on the available information, the aggregate demand for wind towers is likely to be inelastic; a range of -0.2 to -0.6 is suggested.

[41] Respondents' Joint Analysis (prehearing brief), p. 12.

Substitution elasticity

The elasticity of substitution depends upon the extent of product differentiation between the domestic and imported products.[42] Product differentiation, in turn, depends upon such factors as quality (e.g., chemistry, appearance, etc.) and conditions of sale (e.g., availability, sales terms/ discounts/ promotions, etc.). Based on available information, the elasticity of substitution between U.S.-produced wind towers and imported wind towers is likely to be in the range of 3 to 5.

[42] The substitution elasticity measures the responsiveness of the relative U.S. consumption levels of the subject imports and the domestic like products to changes in their relative prices. This reflects how easily purchasers switch from the U.S. product to the subject products (or vice versa) when prices change.

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 six firms that accounted for all known of U.S. production of wind towers during 2019.

U.S. producers

The Commission issued a U.S. producer questionnaire to six firms based on information contained in the petition. All six firms provided usable data on their operations. Staff believe that these responses represent all known U.S. production of wind towers. Table III-1 lists U.S. producers of wind towers, their production locations, positions on the petition, and shares of total production.

Table III-1
Wind towers: U.S. producers of wind towers, their positions on the petition, production locations, and shares of reported production, 2019

Firm	Position on petition	Production location(s)	Share of production (percent)
Arcosa Wind Towers, Inc.	Petitioner	Clinton, IL Newton, IA Tulsa, OK West Fargo, ND[1]	***
Broadwind Towers	Petitioner	Abilene, TX Manitowoc, WI	***
GRI Towers	***	Amarillo, TX	***
Marmen Energy Co.	***	Brandon, SD	***
Ventower Industries	***	Monroe, MI	***
Vestas	***	Pueblo, CO	***
Total			***

Note.-- U.S. producer Marmen ***.

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

[1] Arcosa has produced *** wind towers at this location since 2017.

Table III-2 presents information on U.S. producers' ownership, related and/or affiliated firms. *** U.S. producers are owned by another firm, three U.S. producers are related to foreign producers of wind towers and one U.S. producer is related to a U.S. importer of wind towers, whose imports are discussed below. No U.S. producer reported purchases of wind towers.

Table III-2
Wind towers: U.S. producers' ownership, related and/or affiliated firms

Item / Firm	Firm Name	Affiliated/Ownership
Ownership:		
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***
Related importers/exporters:		
***	***	***
Related producers:		
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***

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

U.S. producers were asked to indicate whether their firm had experienced any plant openings, relocations, expansions, acquisitions, consolidations, closures, or prolonged shutdowns because of strikes or equipment failure; curtailment of production because of shortages of materials or other reasons, including revision of labor agreements; or any other change in the character of their operations or organization relating to the production of wind towers since January 1, 2017. All reported responses are shown in table III-3.

Table III-3
Wind towers: U.S. producers' reported changes in operations, since January 1, 2017

Item / Firm	Reported changed in operations
Plant closings:	
***	***
Expansions:	
***	***
***	***
***	***
Consolidations:	
***	***
Prolonged shutdowns or curtailments:	
***	***
***	***
***	***

Table continued on next page.

Table III-3--Continued
Wind towers: U.S. producers' reported changes in operations, since January 1, 2017

Item / Firm	Reported changed in operations
Revised labor agreements:	
***	***
Other:	
***	***
***	***
***	***
***	***
***	***

Source: Compiled from data submitted in response to Commission questionnaires and supplemental responses to Staff questions.

U.S. production, capacity, and capacity utilization

Table III-4 and figure III-1 present U.S. producers' production, capacity, and capacity utilization. Figure III-2 presents U.S. producers' production, capacity, and capacity utilization ***.[2]

As a whole, U.S. producers' reported capacity increased during 2017-19 by 2.9 percent. With the exception of ***, nearly all U.S. producers reported steady or increasing capacity during 2017-19.[3] [4] *** reported expansions and/or improvements which increased their capacity by approximately *** towers per year between 2017 and 2018.[5]

During 2017-19, U.S. producers experienced an overall increase in production, by 4.7 percent, despite a 3.3 percent decrease in production between 2017 and 2018. These increases in production are consistent with ***.

U.S. producers' capacity utilization (calculated based on reported capacity) experienced a similar trend as production, increasing overall during 2017-19 by 1.2 percentage points, despite dropping in 2018 from 2017 by 3.0 percentage points. U.S. producers *** made up the largest shares of production during 2017-19, collectively comprising between *** percent and *** percent of total U.S. production during 2017-19.

[2] ***. ***. Even with *** during 2017-19 by ***, was ***, and was never *** percent.

[3] U.S. producer *** in its questionnaire response that capacity, when calculated on a per-tower basis, ***. ***.

[4] U.S. producer ***. ***. See also Vestas's posthearing brief at p. 9. ***.

[5] Table III-3.

*** responding U.S. producers reported constraints affecting their firm's production of wind towers. Such constraints include labor, limitations of equipment, and tower type and size, which can affect the amount of raw materials required, as well as the length of time required for various stages of production such as painting and welding.[6]

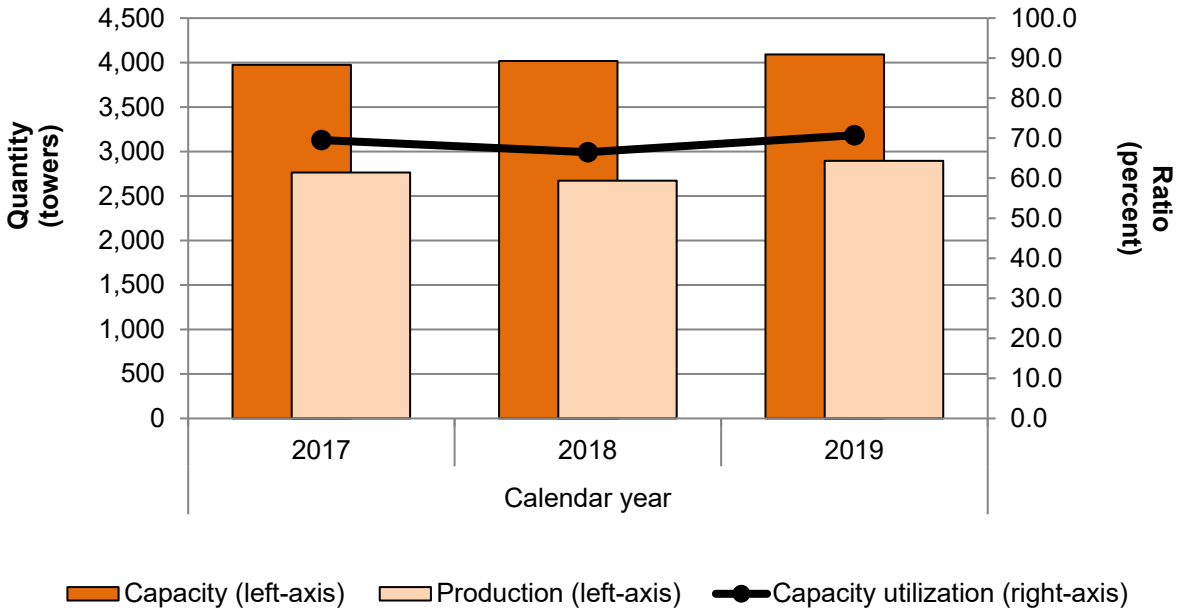
[6] In addition to the tower type and size, U.S. producers also reported shipping *** percent of their towers with internal components, including but not limited to, mechanical and/or electrical fittings such as platforms, ladders, lighting, lifts (elevators), electrical-cable harnesses, storage lockers, and/or any other accessories.

Table III-4
Wind towers: U.S. producers' production, capacity, and capacity utilization, 2017-19

Item	Calendar year		
	2017	2018	2019
	Capacity (units)		
Arcosa	***	***	***
***	***	***	***
***	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Vestas	***	***	***
All firms	3,975	4,017	4,091
All firms ***	***	***	***
	Production (units)		
Arcosa	***	***	***
***	***	***	***
***	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Vestas	***	***	***
All firms	2,764	2,672	2,895
All firms ***	***	***	***
	Capacity utilization (percent)		
Arcosa	***	***	***
***	***	***	***
***	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Vestas	***	***	***
All firms	69.5	66.5	70.8
All firms ***	***	***	***
	Share of production (percent)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Vestas	***	***	***
All firms	100.0	100.0	100.0

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

Figure III-1
Wind towers: U.S. producers' production, capacity, and capacity utilization, 2017-19



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

Figure III-2
Wind towers: U.S. producers' production, capacity, and capacity utilization *, 2017-19**

* * * * * * *

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

Alternative products and U.S. production by weight

The Commission requested that U.S. producers provide data regarding production of wind towers and other products produced on the same machinery by weight (in short tons) and on a per-tower basis, shown here in table III-5.[7] On both a per-tower and weight basis, U.S. producers' production and capacity utilization increased slightly, albeit unevenly, during 2017-19. While *** reported producing *** on the same machinery as wind towers, wind towers accounted for *** percent of production on shared equipment, with other products accounting for *** of total production in each year between 2017 and 2019.[8] U.S. producers' production of wind towers by weight increased relative to reported production of actual towers during 2017-19.

[7] Table III-5 also presents U.S. producers' capacity and production ***, by both weight and on a per-tower basis. On a weight basis, the capacity utilization of *** increased overall during 2017-19, reaching *** percent in 2019, though was at its lowest at *** percent in 2018. On a per-tower basis, the capacity utilization of *** increased overall, but *** during 2017-19.

[8] *** noted in its questionnaire response that while the firm does produce *** on the same machinery as wind towers, ***. *** provided additional comments in its questionnaire, stating that while the firm ***, to do so in place of its wind tower production ***.

Table III-5
Wind towers: U.S. producers' overall capacity and production on the same equipment as subject production and overall capacity and production by weight, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (units)		
Overall capacity - All firms	3,975	4,017	4,091
Overall capacity - All firms ***	***	***	***
Production:			
Wind towers	2,764	2,672	2,895
Other products	***	***	***
Total production on same machinery	***	***	***
	Ratios and shares based on towers (percent)		
Overall capacity utilization	***	***	***
Overall capacity utilization - All firms ***	***	***	***
Share of production:			
Wind towers	***	***	***
Other products	***	***	***
Total production on same machinery	***	***	***
	Quantity (short tons)		
Overall capacity	612,464	622,466	640,527
Overall capacity - All firms ***	***	***	***
Production:			
Wind towers	430,716	424,791	468,225
Other products	***	***	***
Total production on same machinery	***	***	***
	Ratios and shares based on short tons (percent)		
Overall capacity	***	***	***
Overall capacity - All firms ***	***	***	***
Production:			
Wind towers	***	***	***
Other products	***	***	***
Total production on same machinery	***	***	***
	Ratio (short tons per tower)		
Share of production:			
Wind towers	15,583	15,898	16,174
Other products	***	***	***
Total production on same machinery	***	***	***

Note.--Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

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

U.S. producers' expected production

All six firms reported expected production through December 31, 2020, based on their existing order books. These data are presented in table III-6.

Table III-6
Wind towers: U.S. producers' expected production, 2020

Item	Calendar year			
	Jan-Mar 2020	Apr-Jun 2020	Jul-Sep 2020	Oct-Dec 2020
	Capacity (towers)			
Expected production	***	***	***	***

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

U.S. producers' U.S. shipments and exports

Table III-7 presents U.S. producers' U.S. shipments, export shipments, and total shipments. The quantity of U.S. producers' total shipments increased each year during 2017-19, by 1.2 percent between 2017 and 2018, and by 9.9 percent between 2018 and 2019, for a total increase of 11.2 percent during 2017-19. The value of U.S. producers' total shipments also increased each year during 2017-19, by 1.9 percent between 2017 and 2018, and by 15.8 between 2018 and 2019, for a total increase 18.0 percent during 2017-19. Unit values of U.S. producers' total shipments similarly increased each year, by 0.7 percent between 2017 and 2018, and by 5.4 percent between 2018 and 2019, for a total increase of 6.1 percent during 2017-19.

Commercial U.S. shipments made up the majority of U.S. producers' total shipments during 2017-19 (between *** percent by quantity and between *** percent by value). During 2017-19, the quantity of U.S. producers' commercial U.S. shipments increased by *** percent, and the value of U.S. producers' commercial U.S. shipments increased by *** percent. Unit values of U.S. producers' commercial U.S. shipments decreased between 2017 and 2018 by *** percent, but then increased by *** percent between 2018 and 2019, resulting in a net *** percent increase during 2017-19.

Transfers to related firms made up the remainder of U.S. producers' total shipments during 2017-19 (between *** percent by quantity, and between *** percent by value.[9] The quantity and value of U.S. producers' transfers to related firms increased during 2017-19 by *** percent and *** percent, respectively. Unit values of U.S. producers' transfers to related firms increased during 2017-19 by *** percent. U.S. producers reported no export shipments during 2017-19.

The Commission requested additional information regarding U.S. producers' and U.S. importers U.S. shipments of full and partial towers, as well as U.S. shipments by height. These data and corresponding analyses can be found in Part IV and Appendix E.

[9] ***.

Table III-7
Wind towers: U.S. producers' U.S. shipments, exports shipments, and total shipments, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (units)		
Commercial U.S. shipments	***	***	***
Transfers to related firms	***	***	***
U.S. shipments	2,666	2,698	2,964
Export shipments	---	---	---
Total shipments	2,666	2,698	2,964
	Value (1,000 dollars)		
Commercial U.S. shipments	***	***	***
Transfers to related firms	***	***	***
U.S. shipments	843,586	859,598	995,108
Export shipments	---	---	---
Total shipments	843,586	859,598	995,108
	Unit value (dollars per tower)		
Commercial U.S. shipments	***	***	***
Transfers to related firms	***	***	***
U.S. shipments	316,424	318,606	335,731
Export shipments	---	---	---
Total shipments	316,424	318,606	335,731
	Share of quantity (percent)		
Commercial U.S. shipments	***	***	***
Transfers to related firms	***	***	***
U.S. shipments	100.0	100.0	100.0
Export shipments	---	---	---
Total shipments	100.0	100.0	100.0
	Share of value (percent)		
Commercial U.S. shipments	***	***	***
Transfers to related firms	***	***	***
U.S. shipments	100.0	100.0	100.0
Export shipments	---	---	---
Total shipments	100.0	100.0	100.0

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

Captive consumption

Section 771(7)(C)(iv) of the Act states that–[10]

> *If domestic producers internally transfer significant production of the domestic like product for the production of a downstream article and sell significant production of the domestic like product in the merchant market, and the Commission finds that–*
>
> *(I) the domestic like product produced that is internally transferred for processing into that downstream article does not enter the merchant market for the domestic like product,*
>
> *(II) the domestic like product is the predominant material input in the production of that downstream article, and*
>
> *then the Commission, in determining market share and the factors affecting financial performance . . ., shall focus primarily on the merchant market for the domestic like product.*

Transfers and sales

As reported in table III-7 above, transfers of wind towers to related firms accounted for between *** percent by quantity and between *** percent by value of U.S. producers' U.S. shipments of wind towers.

First statutory criterion in captive consumption

The first requirement for application of the captive consumption provision is that the domestic like product that is internally transferred for processing into that downstream article not enter the merchant market for the domestic like product. U.S. producer *** reported *** for the production of completed wind turbines. No U.S. producer reported diverting wind towers intended for internal consumption to the merchant market.

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

Second statutory criterion in captive consumption

The second criterion of the captive consumption provision concerns whether the domestic like product is the predominant material input in the production of the downstream article that is captively produced. With respect to the downstream articles resulting from captive production, wind towers reportedly comprise *** percent of the finished cost of completed wind turbines. See Part II for additional information related to cost share.[11]

U.S. producers' inventories

Table III-8 presents U.S. producers' end-of-period inventories and the ratio of these inventories to U.S. producers' production, U.S. shipments, and total shipments**.** During 2017-19 U.S. producers' end-of-period inventories decreased by *** percent. As a ratio of inventories to total shipments, U.S. producers' end-of-period inventories decreased during 2017-19 by *** percentage points. As a ratio of inventories to U.S. production, U.S. producers' end-of-period inventories decreased during 2017-19 by *** percentage points.

Table III-8
Wind towers: U.S. producers' inventories, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (units)		
U.S. producers' end-of-period inventories	***	***	***
	Ratio (percent)		
Ratio of inventories to.--			
U.S. production	***	***	***
U.S. shipments	***	***	***
Total shipments	***	***	***

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

[11] Petitioners have argued that the Commission should use weight in order to determine whether the domestic like product is the predominant material input in the production of the downstream article that is captively produced. See Petitioners' posthearing brief at 78-79. In a prior related investigation, the Commission's staff report found that wind towers comprise about two-thirds of the weight of the complete turbine. See *Utility Scale Wind Towers from China and Vietnam*, USITC Publication 4372, February 2013 at p. I-9.

U.S. producers' imports

U.S. producers' imports of wind towers are presented in table III-9. As mentioned above, *** one firm, ***, reported imports of wind towers from ***. During 2017-19 these imports from subject sources ***. As a ratio of U.S. production to imports, these imports from subject sources *** percentage points during 2017-19. No U.S. producer reported purchases of wind towers.

Table III-9
Wind towers: U.S. producers' U.S. production, imports and purchases, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (units)		
*** U.S. production	***	***	***
*** U.S. imports from.-- ***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
Subject sources	***	***	***
Nonsubject sources (***)	***	***	***
All import sources	***	***	***
	Ratio (percent)		
*** ratio to U.S. production of imports from.-- ***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
Subject sources	***	***	***
Nonsubject sources (***)	***	***	***
All import sources	***	***	***
	Narrative		
*** reason for importing	***		

Note: ***

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

U.S. employment, wages, and productivity

Table III-10 shows U.S. producers' employment-related data. Production and related workers ("PRWs") decreased during 2017-19 by 5.3 percent. Total hours worked and hours worked per PRW increased during 2017-19, by 1.1 percent and 6.8 percent, respectively. Wages paid and hourly wages also increased during 2017-19, by 3.1 percent and 2.0 percent, respectively, while productivity stayed consistent during 2017-19. Labor costs increased between 2017 and 2018 by 1.4 percent, but then fell by 2.9 percent between 2018 and 2019, with an overall decrease of 1.5 percent during 2017-19.

Table III-10
Wind towers: Average number of production and related workers, hours worked, wages paid to such employees, hourly wages, productivity, and unit labor costs, 2017-19

Item	Calendar year		
	2017	2018	2019
Production and related workers (PRWs) (number)	2,309	2,149	2,186
Total hours worked (1,000 hours)	4,852	4,409	4,906
Hours worked per PRW (hours)	2,101	2,052	2,244
Wages paid ($1,000)	159,858	156,739	164,875
Hourly wages (dollars per hour)	$32.95	$35.55	$33.61
Productivity (units per 10,000 hours)	5.7	6.1	5.9
Unit labor costs (dollars per unit)	$57,836	$58,660	$56,952

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

Part IV: U.S. imports, apparent U.S. consumption, and market shares

U.S. importers

The Commission issued importer questionnaires to nine firms believed to be importers of subject wind towers, as well as to all U.S. producers of wind towers.[1] Usable questionnaire responses were received from seven companies, representing the vast majority of U.S. imports from Canada, Indonesia, Korea, and Vietnam in 2019 under HTS subheading 7308.20.0020, a category that includes towers of various sizes as well as lattice masts.[2] Table IV-1 lists all responding U.S. importers of wind towers from Canada, Indonesia, Korea, Vietnam, and other sources, their locations, and their shares of U.S. imports, in 2019.

Table IV-1
Wind towers: U.S. importers by source, 2019

Firm	Headquarters	Share of imports by source (percent)						
		Canada	Indonesia	Korea	Vietnam	Subject sources	Nonsubject sources	All import sources
CS Wind[3]	Chungcheong nam-do, Korea	***	***	***	***	***	***	***
GE	Schenectady, NY	***	***	***	***	***	***	***
Kousa	Los Angeles, CA	***	***	***	***	***	***	***
Nordex	Chicago, IL	***	***	***	***	***	***	***
Rattlesnake Power	Chicago, IL	***	***	***	***	***	***	***
Siemens	Orlando, FL	***	***	***	***	***	***	***
Vestas	Portland, OR	***	***	***	***	***	***	***
Total		***	***	***	***	***	***	***

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 U.S. Customs and Border Protection ("Customs"), may have accounted for more than one percent of total imports under HTS statistical reporting number 7308.20.0020 in 2019.

[2] *** submitted a certified response stating that the firm had not imported wind towers since 2017. Additionally, in the preliminary phase of these investigations, the Commission received a certified response from *** stating that the firm had not imported wind towers since 2016.

[3] CS Wind reported in its questionnaire that the firm ***.

U.S. imports

Table IV-2 and figure IV-1 present data for U.S. imports of wind towers from Canada, Indonesia, Korea, Vietnam, and all other sources. U.S. imports of wind towers were equivalent to more than one-half of U.S. production levels in two of the three years between 2017 and 2019. The quantity and value of U.S. imports of wind towers from all import sources increased during 2017-19 by *** percent and *** percent, respectively.

U.S. imports of wind towers from subject sources accounted for the majority of wind tower imports throughout 2017-19. Subject imports increased by 58.9 percent and 89.1 percent by quantity and value, respectively, during 2017-19, with almost all of this increase occurring between 2018 and 2019. The unit value of U.S. imports of wind towers from subject sources increased by 19.0 percent during 2017-19, despite a 4.4 percent decrease between 2017 and 2018.

The quantity of U.S. imports of wind towers from Canada decreased between 2017 and 2018 by *** percent, but then increased between 2018 and 2019 by *** percent, for an overall increase during 2017-19 of *** percent. The value of U.S. imports of wind towers from Canada similarly increased overall by *** percent during 2017-19, despite a decrease between 2017 and 2018 by *** percent. The unit value of U.S. imports of wind towers from Canada increased by *** during 2017-19.

U.S. imports of wind towers from Indonesia by quantity increased by *** during 2017-19, but decreased between 2018 and 2019, by *** percent. The value of U.S. imports of wind towers from Indonesia *** during 2017-19, and the unit value increased by ***.[4]

The quantity of U.S. imports of wind towers from Korea increased overall during 2017-19 by *** percent, despite decreasing between 2017 and 2018 by *** percent. The value of U.S. imports of wind towers from Korea similarly increased overall by *** percent during 2017-19 despite a decrease of *** percent between 2017 and 2018. The unit value of U.S. imports of wind towers from Korea decreased by *** percent during 2017-19.

U.S. imports of wind towers from Vietnam were not present in 2017.[5] The quantity and value of U.S. imports of wind towers from Vietnam increased as imports from Vietnam re-entered the U.S. market in 2018, increasing from *** towers to *** towers, or by *** percent,

[4] The increase in value and unit values can be primarily attributed to wind towers imported from Indonesia in 2017 and 2018 by ***.

[5] CS Wind Vietnam, the sole producer of wind towers in Vietnam, was subject to an antidumping duty order from a prior related investigation. See Part I for additional information.

between 2018 and 2019. The unit value of U.S. imports of wind towers from Vietnam increased by *** percent between 2018 and 2019.

U.S. imports of wind towers from nonsubject sources decreased during 2017-19 by all units of measure. Based on responses to the Commission's questionnaire, the majority of nonsubject sources U.S. imports of wind towers during 2017-19 included ***.

Table IV-2
Wind towers: U.S. imports by source, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
U.S. imports from.-- Canada	***	***	***
Indonesia	***	***	***
Korea	***	***	***
Vietnam	***	***	***
Subject sources	990	1,048	1,573
Nonsubject sources	***	***	***
All import sources	***	***	***
	Value (1,000 dollars)		
U.S. imports from.-- Canada	***	***	***
Indonesia	***	***	***
Korea	***	***	***
Vietnam	***	***	***
Subject sources	261,524	264,602	494,496
Nonsubject sources	***	***	***
All import sources	***	***	***
	Unit value (dollars per unit)		
U.S. imports from.-- Canada	***	***	***
Indonesia	***	***	***
Korea	***	***	***
Vietnam	***	***	***
Subject sources	264,166	252,483	314,365
Nonsubject sources	***	***	***
All import sources	***	***	***

Table continued on next page.

Table IV-2--Continued
Wind towers: U.S. imports by source, 2017-19

Item	Calendar year		
	2017	2018	2019
	Share of quantity (percent)		
U.S. imports from.--			
Canada	***	***	***
Indonesia	***	***	***
Korea	***	***	***
Vietnam	***	***	***
Subject sources	***	***	***
Nonsubject sources	***	***	***
All import sources	***	***	***
	Share of value (percent)		
U.S. imports from.--			
Canada	***	***	***
Indonesia	***	***	***
Korea	***	***	***
Vietnam	***	***	***
Subject sources	***	***	***
Nonsubject sources	***	***	***
All import sources	***	***	***
	Ratio to U.S. production		
U.S. imports from.--			
Canada	***	***	***
Indonesia	***	***	***
Korea	***	***	***
Vietnam	***	***	***
Subject sources	35.8	39.2	54.3
Nonsubject sources	***	***	***
All import sources	***	***	***

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

Figure IV-1
Wind towers: U.S. import quantity and average unit value, 2017-19

* * * * * * *

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

Negligibility

The statute requires that an investigation be terminated without an injury determination if imports of the subject merchandise are found to be negligible.[6] Negligible imports are generally defined in the Act, 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.[7] As shown in table IV-3, U.S. imports from Canada, Indonesia, Korea, and Vietnam accounted for *** percent, *** percent, *** percent, and *** percent, respectively, of the quantity of total imports during the twelve months preceding the petition.

Table IV-3
Wind towers: U.S. imports in the twelve months preceding the filing of the petition, July 2018 through June 2019

Item	July 2018 through June 2019	
	Quantity (towers)	Share quantity (percent)
U.S. imports from.--		
Canada	***	***
Indonesia	***	***
Korea	***	***
Vietnam	***	***
Subject sources	1,523	***
Nonsubject sources	***	***
All import sources	***	***

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

[6] 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)).

[7] Section 771 (24) of the Act (19 U.S.C § 1677(24)).

Critical circumstances

On July 6, 2020, Commerce issued its final determination with respect to its countervailing duty investigation of wind towers from Indonesia and determined that "critical circumstances" exist with regard to imports from Indonesia of wind towers from PT Kenertec Power Systems. In this investigation, if both Commerce and the Commission make affirmative final critical circumstances determinations, certain subject imports may be subject to countervailing duties retroactive by 90 days from December 13, 2019, the effective date of Commerce's preliminary affirmative countervailing duty determination.

Commerce also issued its final determinations on July 6, 2020 with respect to its antidumping duty investigations of wind towers from Korea and Vietnam. In these investigations, Commerce determined that "critical circumstances" exist with regard to imports from Korea and Vietnam of wind towers from Dongkuk S&C Co., Ltd. (Korea) as companies under the "all others" rate (Korea), and CS Wind Vietnam (Vietnam).[8] In these investigations, if both Commerce and the Commission make affirmative final critical circumstances determinations, certain subject imports may be subject to antidumping duties retroactive by 90 days from February 14, 2020, the effective date of Commerce's preliminary affirmative LTFV determinations.

Tables IV-4, IV-5, and IV-6, and figures IV-2, IV-3, and IV-4 present data with respect to critical circumstances. The firms for which critical circumstances exist account for all U.S. imports of wind towers from the three abovementioned countries.

[8] 85 FR 40241, 85 FR 40243, and 85 FR 40226, referenced in app. A. When petitioners file timely allegations of critical circumstances, Commerce examines whether there is a reasonable basis to believe or suspect that (1) either there is a history of dumping and material injury by reason of dumped imports in the United States or elsewhere of the subject merchandise, or the person by whom, or for whose account, the merchandise was imported knew or should have known that the exporter was selling the subject merchandise at LTFV and that there was likely to be material injury by reason of such sales; and (2) there have been massive imports of the subject merchandise over a relatively short period.

Table IV-4
Wind towers: Monthly U.S. imports from Indonesia subject to Commerce's final CVD critical circumstances determination

Period	Actual monthly quantity (units)	Outwardly cumulative subtotals (units)	Percentage change from comparable period (percent)
January 2019	***	***	
February 2019	***	***	
March 2019	***	***	
April 2019	***	***	
May 2019	***	***	
June 2019	***	***	
Petition file date: July 9, 2019			
July 2019	***	***	***
August 2019	***	***	***
September 2019	***	***	***
October 2019	***	***	***
November 2019	***	***	***
December 2019	***	***	***

Note: U.S. importers held *** wind towers from Indonesia in inventory at the end of December 2018 / beginning of January 2019 and *** wind towers from Indonesia in inventory at the end of December 2019.

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

Figure IV-2
Wind towers: Monthly U.S. imports from Indonesia subject to Commerce's final CVD critical circumstances determination, January 2019 through December 2019

* * * * * * *

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

Table IV-5
Wind towers: Monthly U.S. imports from Korea subject to Commerce's final AD critical circumstances determination

Period	Actual monthly quantity (units)	Outwardly cumulative subtotals (units)	Percentage change from comparable period (percent)
January 2019	***	***	
February 2019	***	***	
March 2019	***	***	
April 2019	***	***	
May 2019	***	***	
June 2019	***	***	
Petition file date: July 9, 2019			
July 2019	***	***	***
August 2019	***	***	***
September 2019	***	***	***
October 2019	***	***	***
November 2019	***	***	***
December 2019	***	***	***

Note: U.S. importers held *** wind towers from Korea in inventory at the end of December 2018 / beginning of January 2019 and *** wind towers from Korea in inventory at the end of December 2019.

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

Figure IV-3
Wind towers: Monthly U.S. imports from Korea subject to Commerce's final AD critical circumstances determination, January 2019 through December 2019

* * * * * * *

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

Table IV-6
Wind towers: Monthly U.S. imports from Vietnam subject to Commerce's final AD critical circumstances determination

Period	Actual monthly quantity (units)	Outwardly cumulative subtotals (units)	Percentage change from comparable period (percent)
January 2019	***	***	
February 2019	***	***	
March 2019	***	***	
April 2019	***	***	
May 2019	***	***	
June 2019	***	***	
Petition file date: July 9, 2019			
July 2019	***	***	***
August 2019	***	***	***
September 2019	***	***	***
October 2019	***	***	***
November 2019	***	***	***
December 2019	***	***	***

Note: U.S. importers held *** wind towers from Vietnam in inventory at the end of December 2018 / beginning of January 2019 and *** wind towers from Vietnam in inventory at the end of December 2019.

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

Figure IV-4
Wind towers: Monthly U.S. imports from Vietnam subject to Commerce's final AD critical circumstances determination, January 2019 through December 2019

* * * * * * *

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

Cumulation considerations

In assessing whether imports should be cumulated, the Commission determines whether U.S. imports from the subject countries compete with each other and with the domestic like product and has generally considered four factors: (1) fungibility, (2) presence of sales or offers to sell in the same geographical markets, (3) common or similar channels of distribution, and (4) simultaneous presence in the market. Information regarding channels of distribution, market areas, and interchangeability appear in Part II. Additional information concerning fungibility, geographical markets, and simultaneous presence in the market is presented below.[9]

Fungibility

The Commission requested information concerning U.S. producers' and U.S. importers' U.S. shipments of wind towers by height for calendar year 2019. These data are presented in table IV-7 and figure IV-5.

[9] Petitioners contend imports from every country, including Canada are fungible with one another (and that Marmen's top sections are fungible with its U.S.-produced top sections), compete in the same geographic regions, are sold through the same channels of distribution, and have been simultaneously present in the market. Petitioners' posthearing brief at Exh. 1, p. 70-71. Canadian respondent Marmen argued in the firm's prehearing brief that the Commission should not cumulate Canada with the remaining subject countries for purposes of the Commission's threat analysis, arguing that the firm (1) is the only subject producer to export top sections "…as part of "hybrid" towers"; (2) is the only subject producer with U.S. production; (3) is the only subject producer that "can offer logistical advantages {such as} high capacity storage and inland transportation via railcar, boat, or truck, and; (4) sources steel plate from U.S. steel mills. Marmen's prehearing brief, p. 90-91.

Table IV-7
Wind towers: U.S. producers' and U.S. importers U.S. shipments by height, 2019

Item	U.S. producers	U.S. importers			
		Canada	Indonesia	Korea	Vietnam
	Quantity (towers)				
U.S. shipments: 80 meters and below	***	***	***	***	***
80 to 89.9 meters	***	***	***	***	***
90 to 99.0 meters	***	***	***	***	***
100 to 109.9 meters	***	***	***	***	***
110 to 119.0 meters	***	***	***	***	***
120 meters and above	***	***	***	***	***
All heights	2,964	***	***	***	***
	Share across (percent)				
U.S. shipments: Below 80	***	***	***	***	***
to 80 to 89.9	***	***	***	***	***
to 90 to 99.9	***	***	***	***	***
to 100 to 109.9	***	***	***	***	***
to 110 to 119.9	***	***	***	***	***
to Above 120	***	***	***	***	***
Total, all heights	***	***	***	***	***
	Share down (percent)				
U.S. shipments: 80 meters and below	***	***	***	***	***
80 to 89.9 meters	***	***	***	***	***
90 to 99.0 meters	***	***	***	***	***
100 to 109.9 meters	***	***	***	***	***
110 to 119.0 meters	***	***	***	***	***
120 meters and above	***	***	***	***	***
All heights	***	***	***	***	***

Table continued on next page.

Table IV-7--Continued
Wind towers: U.S. producers' and U.S. importers U.S. shipments by height, 2019

Item	U.S. importers			U.S. producers and U.S. importers
	Subject sources	Nonsubject sources	All import sources	
	Quantity (towers)			
U.S. shipments: 80 meters and below	***	***	***	***
80 to 89.9 meters	***	***	***	***
90 to 99.0 meters	***	***	***	***
100 to 109.9 meters	***	***	***	***
110 to 119.0 meters	***	***	***	***
120 meters and above	***	***	***	***
All heights	1,581	***	***	***
	Share across (percent)			
U.S. shipments: Below 80	***	***	***	***
to 80 to 89.9	***	***	***	***
to 90 to 99.9	***	***	***	***
to 100 to 109.9	***	***	***	***
to 110 to 119.9	***	***	***	***
to Above 120	***	***	***	***
Total, all heights	***	***	***	***
	Share down (percent)			
U.S. shipments: 80 meters and below	***	***	***	***
80 to 89.9 meters	***	***	***	***
90 to 99.0 meters	***	***	***	***
100 to 109.9 meters	***	***	***	***
110 to 119.0 meters	***	***	***	***
120 meters and above	***	***	***	***
All heights	***	***	***	***

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

Figure IV-5
Wind towers: U.S. producers' and U.S. importers U.S. shipments by height, 2019

* * * * * * *

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

The overwhelming majority of U.S. producers' and U.S. importers U.S. shipments of wind towers from subject sources were reported to measure from 80 to 89.9 meters and 90-99.9 meters during 2019. A relatively small number of U.S. producers' wind tower shipments were between 110 and 119.9 meters. There were *** shipments of wind towers below 80 meters reported by U.S. producers or U.S. importers of wind towers from ***. U.S. importers reported shipments of wind towers from Canada in every height category ***, with *** percent of shipments of wind towers from Canada measuring between 80 and 99.9 meters.

U.S. importers reported shipments of wind towers from Indonesia in *** of the six total height categories. *** percent of shipments of wind towers from Indonesia were between 80 and 89.9 meters. U.S. importers of wind towers from Korea reported shipments in *** of the six height categories, with *** percent of shipments of wind towers from Korea measuring between 80 and 99.9 meters. U.S. importers of wind towers from Vietnam reported shipments in *** of the six height categories. While *** percent of these shipments were *** between 80 and 99.9 meters. U.S. importers of wind towers from nonsubject sources reported shipments in *** of the six height categories, with *** percent of shipments reported to be ***. The *** shares of U.S. shipments of wind towers from nonsubject sources were of towers between 90 and 99.9 meters, and 100 to 109.9 meters. The Commission additionally requested information concerning U.S. producers' and U.S. importers' U.S. shipments of full and partial wind towers

during 2017-19. Data pertaining to shipments of full and partial wind towers for calendar year 2019 is presented below in table IV-8 and figure IV-6.[10]

Table IV-8
Wind towers: U.S. producers' and U.S. importers U.S. shipments of full and partial wind towers, 2019

Item	U.S. producers	U.S. importers			
		Canada	Indonesia	Korea	Vietnam
	Quantity (units)				
U.S. shipments:					
Sold as full tower	***	***	***	***	***
Sold as partial tower	***	***	***	***	***
Both full towers and sections	2,964	***	***	***	***
	Share across (percent)				
U.S. shipments:					
Sold as full tower	***	***	***	***	***
Sold as partial tower	***	***	***	***	***
Both full towers and sections	***	***	***	***	***
	Share down (percent)				
U.S. shipments:					
Sold as full tower	***	***	***	***	***
Sold as partial tower	***	***	***	***	***
Both full towers and sections	***	***	***	***	***

Table continued on next page.

[10] Additional information pertaining to U.S. producers' and U.S. importers' U.S. shipments of full and partial wind towers can be found in Appendix E. Additional information pertaining to U.S. producers' and U.S. importers' U.S. shipments of wind towers by height can be found in Appendix F.

Table IV-8--Continued
Wind towers: U.S. producers' and U.S. importers U.S. shipments of full and partial wind towers, 2019

Item	U.S. importers			U.S. producers and U.S. importers
	Subject sources	Nonsubject sources	All import sources	
	Quantity (units)			
U.S. shipments:				
Sold as full tower	***	***	***	***
Sold as partial tower	***	***	***	***
Both full towers and sections	***	***	***	***
	Share across (percent)			
U.S. shipments:				
Sold as full tower	***	***	***	***
Sold as partial tower	***	***	***	***
Both full towers and sections	***	***	***	***
	Share down (percent)			
U.S. shipments:				
Sold as full tower	***	***	***	***
Sold as partial tower	***	***	***	***
Both full towers and sections	***	***	***	***

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

Figure IV-6
Wind towers: U.S. producers' and U.S. importers U.S. shipments of full and partial wind towers, 2019

* * * * * * *

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

Geographical markets

Table IV-9 presents U.S. imports of towers and lattice masts under HTS statistical reporting number 7308.20.0020 by border of entry based on official import statistics. More than 99 percent of subject imports from Canada entered through the Eastern or Northern borders of the United States. More than 96 percent of imports from Indonesia entered through Southern borders, and imports from Vietnam entered only through Southern borders. Imports from Korea entered each U.S. region, although predominantly entered through Southern borders.

Table IV-9
Towers and lattice masts: U.S. imports by border of entry, 2019

Item	Border of entry				
	East	North	South	West	All borders
	Value (1,000 dollars)				
U.S. imports from.--					
Canada	2,599	55,627	---	430	58,656
Indonesia	---	---	120,907	4,428	125,334
Korea	1,165	31	59,419	31,218	91,834
Vietnam	---	---	107,023	---	107,023
Subject sources	3,764	55,658	287,349	36,076	382,847
Nonsubject sources	7,209	10,777	101,183	2,537	121,706
All import sources	10,973	66,435	388,532	38,613	504,554
	Share across (percent)				
U.S. imports from.--					
Canada	4.4	94.8	---	0.7	100.0
Indonesia	---	---	96.5	3.5	100.0
Korea	1.3	0.0	64.7	34.0	100.0
Vietnam	---	---	100.0	---	100.0
Subject sources	1.0	14.5	75.1	9.4	100.0
Nonsubject sources	5.9	8.9	83.1	2.1	100.0
All import sources	2.2	13.2	77.0	7.7	100.0
	Share down (percent)				
U.S. imports from.--					
Canada	23.7	83.7	---	1.1	11.6
Indonesia	---	---	31.1	11.5	24.8
Korea	10.6	0.0	15.3	80.8	18.2
Vietnam	---	---	27.5	---	21.2
Subject sources	34.3	83.8	74.0	93.4	75.9
Nonsubject sources	65.7	16.2	26.0	6.6	24.1
All import sources	100.0	100.0	100.0	100.0	100.0

Note.--Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

Source: Compiled from official U.S. import statistics using HTS statistical reporting number 7308.20.0020, accessed May 12, 2020.

Presence in the market

Table IV-10 and figures IV-7 and IV-8 present monthly official U.S. import statistics for subject countries and nonsubject sources. Imports of towers and lattice masts from subject and nonsubject sources were present along with domestic product during January 2017-May 2020. Imports from Canada entered during each of the 41 months. Imports from Indonesia entered during 28 of the 41 months, entering more frequently and with increasing value towards the end of the period. Imports from Korea entered during 28 of the 41 months, with an overall increase in value from May 2018 through September 2019. Imports from Vietnam were not present until May 2018, but then entered with increasing value through December 2019. Imports of towers and lattice masts from nonsubject sources were present during each of the 41 months.

Table IV-10
Towers and lattice masts: U.S. imports by month, January 2017 – May 2020

U.S. imports	Canada	Indonesia	Korea	Vietnam	Subject sources	Nonsubject sources	All import sources
	Value (1,000 dollars)						
2017.--							
January	509	5,825	498	---	6,833	994	7,827
February	27	9,232	390	---	9,648	1,324	10,973
March	63	6,926	1,705	---	8,694	6,426	15,121
April	32	5,472	534	---	6,038	36,087	42,125
May	3,076	12,711	371	---	16,158	27,310	43,468
June	11,346	---	316	---	11,662	17,215	28,878
July	8,406	4,882	84	---	13,373	26,896	40,269
August	4,952	---	2,252	---	7,205	14,182	21,387
September	4,390	---	145	---	4,535	6,884	11,418
October	181	6,135	---	---	6,315	3,015	9,331
November	4,343	6,627	---	---	10,970	1,497	12,467
December	7,507	---	---	---	7,507	1,539	9,046
2018.--							
January	436	---	---	---	436	5,150	5,587
February	206	---	---	---	206	555	762
March	5,404	---	---	---	5,404	1,306	6,709
April	5,039	---	---	---	5,039	1,942	6,981
May	14,856	---	13,811	90	28,758	14,567	43,325
June	794	---	7,193	---	7,987	1,356	9,343
July	16,413	---	5,869	3,091	25,373	8,375	33,747
August	18,411	18,250	6,022	5,681	48,364	3,551	51,915
September	3,096	14,922	---	---	18,018	557	18,575
October	196	---	---	2,949	3,145	778	3,923
November	92	21,105	10,723	8,448	40,367	743	41,110
December	171	7,096	16,119	1,726	25,113	581	25,694

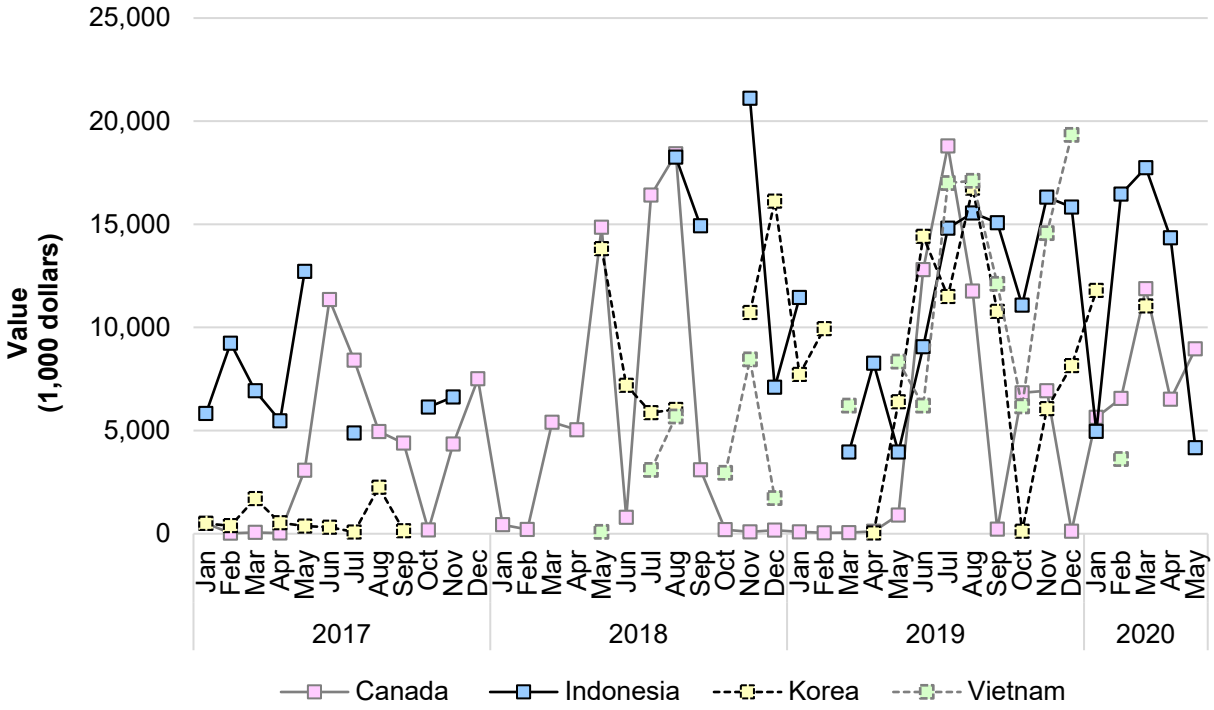
Table continued on next page.

Table IV-10--Continued
Towers and lattice masts: U.S. imports by month, January 2017 – May 2020

U.S. imports	Canada	Indonesia	Korea	Vietnam	Subject sources	Nonsubject sources	All import sources
	Value (1,000 dollars)						
2019.--							
January	92	11,451	7,720	---	19,263	6,027	25,290
February	43	---	9,937	---	9,980	2,295	12,275
March	50	3,956	---	6,208	10,214	2,056	12,270
April	117	8,265	33	---	8,414	1,676	10,091
May	904	3,956	6,393	8,341	19,593	11,086	30,679
June	12,801	9,057	14,413	6,210	42,480	2,163	44,643
July	18,796	14,808	11,497	16,995	62,096	1,415	63,511
August	11,756	15,544	16,744	17,106	61,150	25,726	86,876
September	219	15,074	10,776	12,106	38,174	5,326	43,500
October	6,828	11,078	119	6,165	24,190	31,267	55,457
November	6,930	16,315	6,059	14,569	43,872	21,463	65,335
December	120	15,831	8,145	19,324	43,420	11,207	54,627
2020.--							
January	5,639	4,959	11,789	---	22,387	14,754	37,141
February	6,556	16,455	---	3,613	26,625	27,710	54,335
March	11,875	17,739	11,039	---	40,653	36,635	77,288
April	6,515	14,338	---	---	20,853	49,591	70,445
May	8,957	4,167	---	---	13,124	51,105	64,228

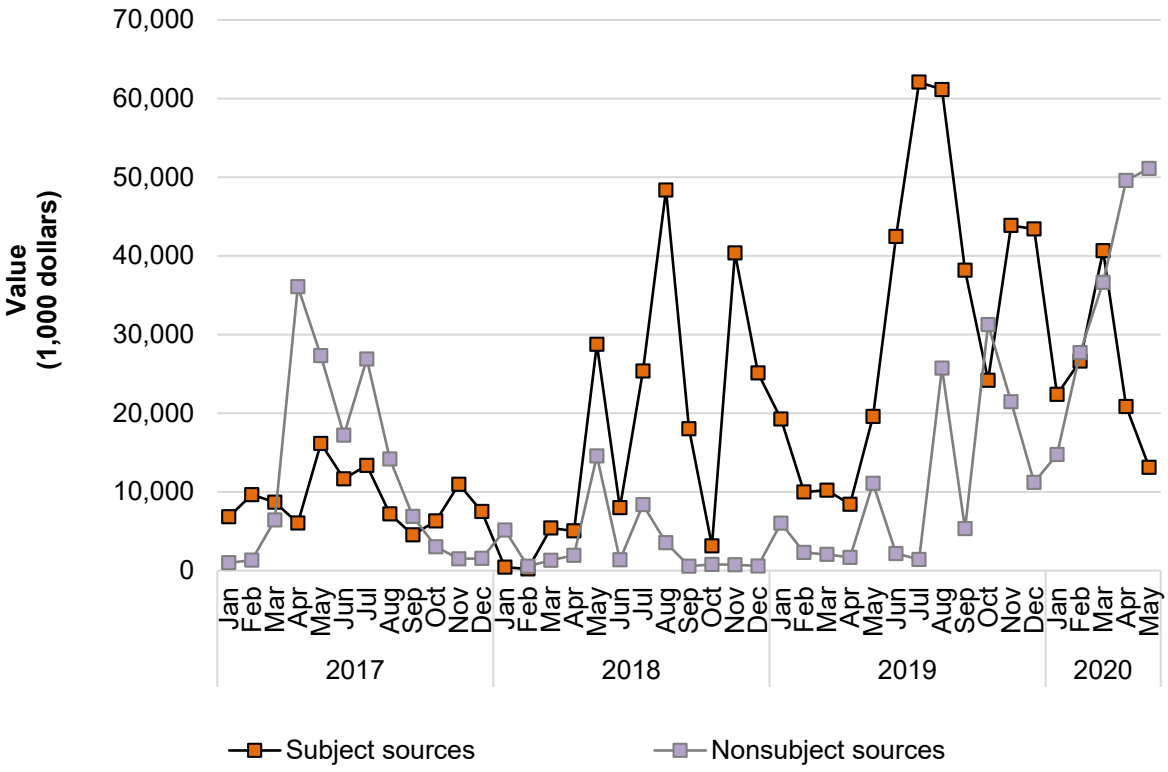
Source: Compiled from official import statistics using HTS statistical reporting numbers 7308.20.0020, accessed May 12, 2020.

Figure IV-7
Towers and lattice masts: U.S. imports, by subject country, by month, January 2017 through May 2020



Source: Compiled from Official Statistics using HTS statistical reporting numbers 7308.20.0020, accessed May 12, 2020.

Figure IV-8
Towers and lattice masts: U.S. imports, by source, by month, January 2017 through May 2020



Source: Compiled from Official Statistics using HTS statistical reporting numbers 7308.20.0020, accessed May 12, 2020.

Apparent U.S. consumption

Tables IV-11 and IV-12 and figures IV-9 and IV-10 present data on apparent U.S. consumption for wind towers for the total and merchant markets, respectively. During 2017-19 the quantity of apparent U.S. consumption in the total market increased by *** percent, and the value of apparent U.S. consumption increased by *** percent. Much of this increase reflects an increase in U.S. shipments of imports of wind towers from subject sources. In contrast, during 2017-19, the quantity of U.S. shipments of imports from nonsubject sources decreased by *** percent, and the value of U.S. shipments of imports from nonsubject sources decreased by *** percent.

Similar to trends observed in the total market, the quantity of apparent U.S. consumption in the merchant market increased by *** percent, and the value of apparent U.S. consumption increased by *** percent during 2017-19. The quantity and value of U.S. importers' U.S. shipments from subject sources increased by *** percent and *** percent, respectively, while the quantity and value of U.S. importers' U.S. shipments from nonsubject sources decreased by *** percent and *** percent, respectively.

Table IV-11
Wind towers: U.S. shipments of domestic product, U.S. shipments of imports, and apparent U.S. consumption, total market, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
U.S. producers' U.S. shipments	2,666	2,698	2,964
U.S. importers' U.S. shipments from.--			
Canada	***	***	***
Indonesia	***	***	***
Korea	***	***	***
Vietnam	***	***	***
Subject sources	993	971	1,581
Nonsubject sources	***	***	***
All import sources	***	***	***
Apparent U.S. consumption	***	***	***
	Value (1,000 dollars)		
U.S. producers' U.S. shipments	843,586	859,598	995,108
U.S. importers' U.S. shipments from.--			
Canada	***	***	***
Indonesia	***	***	***
Korea	***	***	***
Vietnam	***	***	***
Subject sources	261,474	239,515	496,489
Nonsubject sources	***	***	***
All import sources	***	***	***
Apparent U.S. consumption	***	***	***

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

Table IV-12
Wind towers: U.S. shipments of domestic product, U.S. shipments of imports, and apparent U.S. consumption, merchant market, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
U.S. producers' commercial U.S. shipments	***	***	***
U.S. importers' U.S. shipments from.--			
Canada	***	***	***
Indonesia	***	***	***
Korea	***	***	***
Vietnam	***	***	***
Subject sources	993	971	1,581
Nonsubject sources	***	***	***
All import sources	***	***	***
Apparent U.S. consumption	***	***	***
	Value (1,000 dollars)		
U.S. producers' commercial U.S. shipments	***	***	***
U.S. importers' U.S. shipments from.--			
Canada	***	***	***
Indonesia	***	***	***
Korea	***	***	***
Vietnam	***	***	***
Subject sources	261,474	239,515	496,489
Nonsubject sources	***	***	***
All import sources	***	***	***
Apparent U.S. consumption	***	***	***

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

Figure IV-9
Wind towers: U.S. shipments of domestic product, U.S. shipments of imports, and apparent U.S. consumption, total market, 2017-19

* * * * * * *

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

Figure IV-10
Wind towers: U.S. commercial shipments of domestic product, U.S. shipments of imports, and apparent U.S. consumption, merchant market, 2017-19

* * * * * * *

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

U.S. market shares

Tables IV-13 and IV-14 present data on U.S. market shares for the total and merchant markets, respectively. Despite gaining market share in 2018, U.S. producers' market share in the total market decreased by *** percentage points by quantity and by *** percentage points by value during 2017-19. Similarly, in the merchant market, U.S. producers' market share by both quantity and value decreased during 2017-19, by *** percentage points and *** percentage points, respectively. In contrast, the total market share of imports from subject sources increased during 2017-19, by *** percentage points by quantity, and by *** percentage points value. The merchant market share by quantity held by U.S. importers from subject sources increased by *** percentage points. The market share by value held by U.S. importers from subject sources in the merchant market increased by *** percentage points during 2017-19.

Table IV-13
Wind towers: Market shares, total market, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
Apparent U.S. consumption	***	***	***
	Share of quantity (percent)		
U.S. producers' U.S. shipments	***	***	***
U.S. importers' U.S. shipments from.--			
Canada	***	***	***
Indonesia	***	***	***
Korea	***	***	***
Vietnam	***	***	***
Subject sources	***	***	***
Nonsubject sources	***	***	***
All import sources	***	***	***
	Value (1,000 dollars)		
Apparent U.S. consumption	***	***	***
	Share of value (percent)		
U.S. producers' U.S. shipments	***	***	***
U.S. importers' U.S. shipments from.--			
Canada	***	***	***
Indonesia	***	***	***
Korea	***	***	***
Vietnam	***	***	***
Subject sources	***	***	***
Nonsubject sources	***	***	***
All import sources	***	***	***

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

Table IV-14
Wind towers: Market shares, merchant market 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
Apparent U.S. consumption	***	***	***
	Share of quantity (percent)		
U.S. producers' commercial U.S. shipments	***	***	***
U.S. importers' U.S. shipments from.--Canada	***	***	***
Indonesia	***	***	***
Korea	***	***	***
Vietnam	***	***	***
Subject sources	***	***	***
Nonsubject sources	***	***	***
All import sources	***	***	***
	Value (1,000 dollars)		
Apparent U.S. consumption	***	***	***
	Share of value (percent)		
U.S. producers' commercial U.S. shipments	***	***	***
U.S. importers' U.S. shipments from.--Canada	***	***	***
Indonesia	***	***	***
Korea	***	***	***
Vietnam	***	***	***
Subject sources	***	***	***
Nonsubject sources	***	***	***
All import sources	***	***	***

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

Part V: Pricing data

Factors affecting prices

Raw material costs

Raw materials account for a substantial share of the cost-of-goods sold ("COGS") for wind towers. During 2017-19, raw materials' share of COGS ranged between 68.8 percent (2017) and 72.4 percent (2019).[1] In some cases, wind turbine manufacturers provide raw materials for wind tower production or require U.S. producers to purchase raw materials such as steel plate and steel flanges from specific suppliers at specified prices.[2] In these situations, the negotiations take place over "conversion price contracts," described below.

Steel plate is the principal raw material used in making wind towers, along with flanges, paint, and interior parts.[3] (See Part VI for detailed cost breakdowns.) As shown in figure V-1, the producer price index (PPI) for hot-rolled steel plate bars, plate and structural shapes increased somewhat in the beginning of 2017, and then more substantially in the beginning of 2018, before decreasing over the course of 2019.[4]

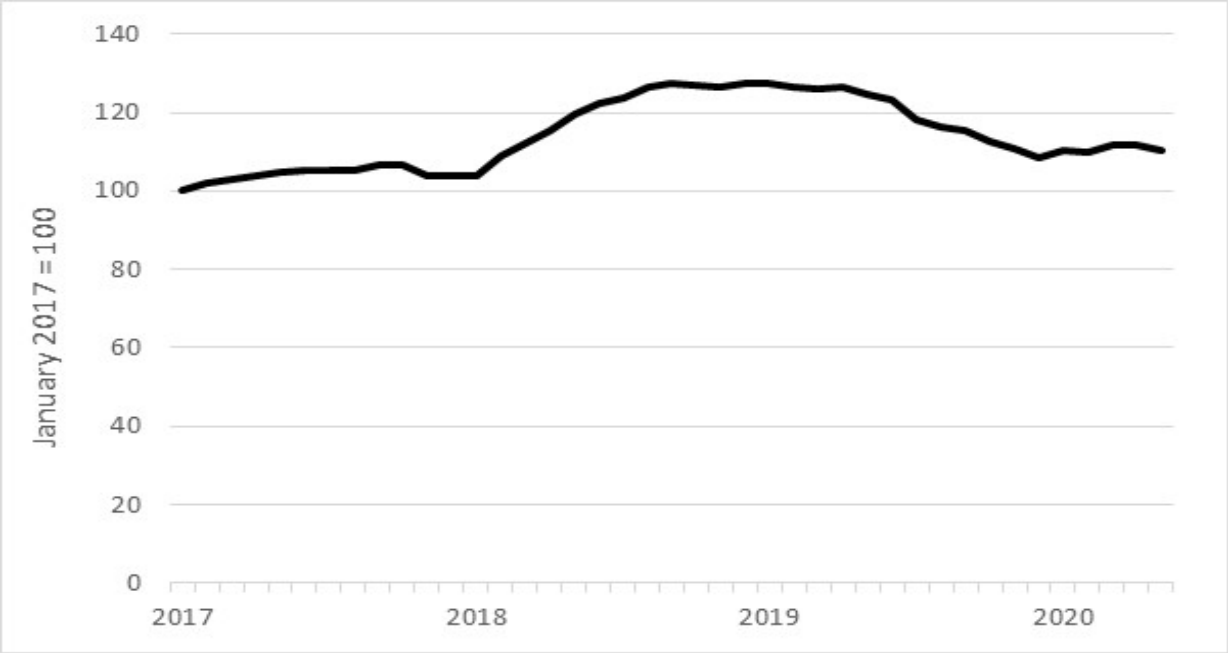
[1] These data reflect all U.S. production, whether for the merchant market or internal consumption.

[2] *Utility Scale Wind Towers from China and Vietnam*, *Inv. Nos. 701-TA-486 and 731-TA-1195-1196 (Review)*, USITC Publication 4888, April 2019, p. V-1.

[3] *Utility Scale Wind Towers from China and Vietnam*, *Inv. Nos. 701-TA-486 and 731-TA-1195-1196 (Review)*, USITC Publication 4888, April 2019, p. V-1. Conference transcript, p. 17 (Janda).

[4] The preliminary phase staff report in these investigations showed proprietary data for hot-rolled steel prices. The public PPI data for hot-rolled steel bar, plate, and structural shapes ***.

Figure V-1
Producer price index: Hot-rolled steel bar, plate, and structural shapes, January 2017 to May 2020



Source: Bureau of Labor Statistics vis the St. Louis Federal Reserve Bank, accessed May 5 and July 9, 2020.

As described in Part I, on March 8, 2018, the President announced his decision to impose 25 percent ad valorem duties on steel mill products from multiple U.S. trading partners, pursuant to Section 232 of the Trade Expansion Act of 1962 (19 U.S.C. §1862). U.S. producers and importer/purchasers[5] were asked to characterize the effects of section 232 tariffs on imported steel products. Four U.S. producers and five importer/purchasers indicated that the section 232 tariffs affected the U.S. wind towers market, and had led to an increase in steel costs. Two U.S. producers and one importer/purchaser, in contrast, stated that the imposition of the section 232 tariffs had not had an effect on the wind towers market. One importer/purchaser stated that it did not know.

U.S. producers and importer/purchasers were also asked more detailed questions about the impact of the section 232 tariffs on raw material costs and prices of wind towers. Three U.S. producers and five importer/purchasers indicated that the section 232 tariffs had caused the raw material costs for producing wind towers in the U.S. market to increase, while two U.S. producers and one importer/purchaser indicated that the tariffs had caused such costs to

[5] In this chapter, all firms that submitted a U.S. importers'/purchasers' questionnaire are referred to as "importer/purchasers," even if they only imported.

fluctuate. Marmen stated that the section 232 tariffs had had no impact on its own firm because it had an existing longstanding contract for steel before the section 232 tariffs went into effect.[6] Similarly, Arcosa stated that it had secured steel supply before the section 232 tariffs went into effect, so that the section 232 tariffs had no effect on its costs from 2017 to 2019.[7] U.S. producer *** stated that ***. U.S. producer *** described steel costs as initially rising, and then declining.

Three U.S. producers and five importer/purchasers indicated that the section 232 tariffs had caused the prices of wind towers in the U.S. market to increase, while two U.S. producers and one importer/purchaser indicated that the tariffs had caused such prices to fluctuate. U.S. producer *** stated that even though overall wind tower prices rose, the conversion cost component was often leveraged down. Importer/purchaser *** stated that rising steel costs due to the section 232 tariffs increased wind tower prices by two to six percent.

A combination of antidumping and countervailing duty orders on cut-to-length plate from Austria, Belgium, Brazil, China, France, Germany, Italy, Japan, Korea, South Africa, Taiwan, and Turkey entered into effect in the United States in January-May 2017. U.S. producers and importers were also asked about the impact on the wind tower market of these antidumping and countervailing duty orders. Four U.S. producers stated that they did not know, and two (***) stated that these orders had not had an impact. Among U.S. importers, six stated that they did not know, but one, (***) stated that the orders raised the cost of steel and the selling prices of wind towers.

In response to broader questions about raw material cost trends, two U.S. producers and four U.S. importer/purchasers indicated that raw materials costs had risen since January 1, 2017, most often citing higher steel prices, especially because of the section 232 tariffs. *** added that increased raw material costs had reduced its profitability. U.S. producer *** indicated that raw material costs rose until 2019, but declined thereafter. U.S. importer/purchaser *** indicated that the costs of steel plate as well as other components (flanges, paint, and cables) had risen, due to tariffs on Chinese and Mexican produced parts. U.S. importer/purchaser *** indicated that increased raw material costs had increased the cost of a wind tower by 20 percent.

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[6] Conference transcript, p. 123 (Pellerin). However, in this final phase, Marmen cited Broadwind statements that it had seen its margins reduced by the section 232 tariffs, as well as ***. See Marmen's posthearing brief, p. 7.

[7] Hearing transcript, p. 99 (Arcosa).

Four U.S. producers and two importers described raw material prices as having fluctuated since January 1, 2017. *** explained that it had made a long-term contract for steel purchases with U.S. steel mills before the section 232 tariffs began. It added that, while steel prices had risen in 2018, they had decreased substantially since then. Additionally, U.S. importer/purchaser *** indicated that there had been no change in raw material costs.

U.S. producers and importer/purchasers were asked if information on raw material prices had affected their firm's negotiations or contracts to produce, import, or purchase wind towers. Two U.S. producers and five importer/purchasers stated that it had not. U.S. producer *** stated that it generally locks in steel costs on an annual basis. U.S. producer *** stated that it adjusts conversion costs continually, independently of raw material costs. (Conversion cost negotiations are discussed in more detail below.) U.S. importer *** stated that its customer was able to raise wind towers prices to cover costs.

However, three U.S. producers and two importers stated that information on raw material prices had affected their firm's negotiations or contracts. U.S. *** stated that increased raw material costs are either absorbed or passed on to customers, and also cause more acrimonious negotiations. *** also cited the section 232 tariffs as having raised raw material costs.

Transportation costs to the U.S. market

During 2019, transportation costs for wind towers shipped from subject countries to the United States averaged 3.6 percent for Canada, 15.2 percent for Indonesia, 16.7 percent for Korea, and 0.9 percent for Vietnam. However, some of these averages were substantially different in other years. Transportation costs were only 3.6 percent for Indonesia in 2017. These estimates were derived from official import data and represent the transportation and other charges on imports.[8]

[8] The estimated transportation costs were obtained by subtracting the customs value from the c.i.f. value of the imports for 2018 and then dividing by the customs value based on the HTS statistical reporting number 7308.20.0020.

U.S. inland transportation costs

Inland shipping costs typically account for a substantial share of the total delivered cost of wind towers and are usually the responsibility of the purchaser. Petitioners indicated that wind towers typically are placed in a "lay-down" facility after production, and later retrieved by the customer.[9] In questionnaire responses, five U.S. producers and one responding U.S. importer/purchaser (***) reported that their customers typically arrange transportation.[10] *** reported that they arrange transportation to the customer. Vestas described inland transportation costs as approximately equal per mile, but added that rail transport was less expensive than truck transport. It also stated that for locations 200-300 miles from a port, where inland transportation distances are shorter, overseas producers were often at a cost advantage over U.S. producers.[11]

Since many U.S. producers do not arrange transportation, they did not report U.S. inland transportation costs to their customers. U.S. importer/purchasers did. *** reported that U.S. inland transportation costs accounted for *** percent of the cost of its domestic wind towers and *** percent of the cost of its imported wind towers. *** reported that transportation costs were 5 to 40 percent of the cost of wind towers, *** reported that transportation costs were 17 percent of the costs of wind towers, and U.S. importer *** reported that transportation costs were 16 percent of the cost of wind towers. Marmen indicated that transportation costs were lower for top sections of wind towers than for other sections.[12]

Parties differed over how purchasers take into account transportation costs. Marmen and Vestas stated that purchasers choose among wind towers taking into account fully delivered cost, including all transportation costs, rather than the f.o.b. price alone.[13] Petitioners stated that, while transportation costs are "relevant" to purchasing decisions, f.o.b. price is the most important consideration. They added that some purchases may involve supply agreements for wind towers for which the purchaser (which is responsible for transportation)

[9] Production is for a contracted sale. Conference transcript, p. 22 (Janda) and p. 30 (Cole).

[10] Six importers reported that transportation was arranged from their point of importation.

[11] Hearing transcript, pp. 269-70 (Choy).

[12] Hearing transcript, pp. 274-75 (Pellerin and Campbell).

[13] Conference transcript, p. 117 (Pellerin) and p. 138 (Kao), and Vestas's postconference brief, p. 6. Industry witnesses sometimes referred to "landed" cost, by which they meant delivered cost. To avoid confusion with other trade terms, the term "delivered" cost is used in this section, except where firms are quoted directly.

does not yet know when or where the wind tower will be used, and so price competition takes place over f.o.b. price.[14] GE stated that when it negotiates annual contracts, it has a "very good idea" of where a majority of purchased wind towers will be used.[15] Vestas stated that it evaluates its contracts to purchase of wind towers considering from which region it expects to purchase.[16]

Pricing practices

Pricing methods

U.S. producers and importers use transaction-by-transaction negotiation and contracts in their sales of wind towers. Four U.S. producers that sell wind towers reported using transaction-by-transaction negotiations as well as contracts for their sales of wind towers, while one (***) reported using only contracts. *** explained that it used transaction-by- transaction negotiation for *** and contracts for ***. Among importers that sell wind towers, *** reported using contracts while *** reported using both contracts and transaction-by-transaction negotiations.[17]

*** importer/purchasers indicated that their purchases or imports involve negotiations between supplier and purchaser. *** indicated that their imports do not. *** importer/purchasers described negotiations as involving price, payment terms, delivery schedule, minimum order quantities, warranties, raw material costs, labor costs, and/or storage conditions.

U.S. producers reported selling wind towers under contracts, but the length of these contracts varied by firm. *** contracts were almost entirely or entirely long-term (usually of *** years). *** contracts were only short-term (of *** days), and *** contracts were annual. Among importers that resell wind towers, *** contracts were short-term (*** days), and *** contracts were annual. At the Commission's staff conference, Arcosa stated that most of its contracts are three-year contracts, and added

[14] Petitioners' postconference brief, p. 21, and staff conference transcript, p. 10 (Price) and pp. 30 and 51 (Cole).

[15] Hearing transcript, pp. 237-238 (Long). See also GE's posthearing brief, p. 6.

[16] Hearing transcript, p. 154 (Choy). ***. See petitioners' posthearing brief, pp. 30-31.

[17] Several U.S. producers and/or importers answered the question. Because some of these firms all internally consume wind towers and do not sell wind towers, their responses are not compiled in the analysis above.

that this length meant that its customers could not know where the wind farms would be that far in advance, but instead were purchasing bulk volume.[18] It also stated that some OEMs have not honored volume commitments or deferred contractually-obligated purchases in order to purchase subject imports.[19] Broadwind also stated that it built up capacity at one of its facilities to meet demand from a three-year contract, but the purchaser did not meet minimum purchase quantities in the third year.[20] Arcosa reported similar negotiations.[21]

U.S. producers *** indicated that their contracts allow for price renegotiation, although *** indicated that its contracts do not. U.S. producer *** stated that its short-term contracts did not allow price renegotiation but its long-term contracts did. Producers generally indicated that their contracts fixed price and quantity. U.S. producers *** stated that their contracts do not include provisions adjusting price to raw materials cost changes, but *** contracts do. *** stated that it indexes its prices to ***. The importers that resell wind towers (***) reported that their contracts ***.

Most importer/purchasers reported that they purchase product on a project-specific basis, or within a supply agreement. *** stated that it places orders weekly, but negotiates contracts annually or quarterly, and places orders months ahead of purchase. *** stated that it makes spot orders after execution of a supply agreement and negotiates *** such agreements per year. *** indicated that it purchases monthly. Five purchaser/importers indicated that their purchasing frequency had not changed since January 1, 2017. However, *** stated that, due to increased demand, its number of 2019 projects (***) had more than *** from the previous year, necessitating more orders.

Original Equipment Manufacturer (OEM) importer/purchasers (***) contact between *** and *** suppliers before purchasing. Other importer/purchasers (***) contact *** suppliers before making a purchase.

[18] Conference transcript, p. 61 (Cole).

[19] Petitioners' prehearing brief, p. 24.

[20] Hearing transcript, pp. 26-30 (Blashford).

[21] Hearing transcript, p. 124 (Cole). However, in response, respondents cited the statements of Siemens, sued by Arcosa for breach of contract, that Arcosa had not been able to make timely deliveries, and its wind towers had quality issues. See Kenertec's posthearing brief, pp. 3-4.

Conversion price contracts

As noted above, some wind tower transactions are conducted as "conversion price contracts" in which the negotiated price includes labor and mark-up costs, but not major input costs (such as steel). Among U.S. producers, *** stated that all of its contracts with OEMs were conversion price contracts, *** stated that some were, and *** stated that they did not have such contracts.[22] Among U.S. OEM importer/purchasers, *** stated that all of its contracts with wind tower producers were conversion price contracts, and *** stated that some were.

*** indicated that its conversion price contracts were all with ***, with a conversion price that excluded the cost of steel, fixtures, bus bars, power cables, and platforms. It added that the OEM will either purchase the steel itself or direct *** to purchase steel from a particular supplier. *** indicated that its conversion price contracts were with ***. It further explained that ***.

*** stated that its conversion price contracts were with *** and excluded only paint costs (and included steel, fixtures, bus bars, power cables, platforms, and flanges). *** stated that its conversion price contracts with *** and exclude the costs of ***.

Sales terms and discounts

U.S. producers typically quote prices on an f.o.b. basis. Among importers that resell wind towers, ***.

Three U.S. producers reported having discounts for on-time payment, and one[23] reported not having a discount policy. Only *** reported quantity discounts. Among importers that resell wind towers, ***.

[22] ***. See petitioners' posthearing brief, pp. 49-50.

[23] ***.

Price leadership

Importer/purchasers were asked to identify any firms that acted as price leaders in the U.S. wind tower market, and to describe how those firms led. No importer/purchasers named any price leaders. *** stated that wind tower manufacturers price their towers based on customer specifications, quantity ordered, and the time orders are placed.

BID DATA, LOST SALES, AND LOST REVENUE

Overview

As noted in Part II, most U.S. wind towers purchasers are also importers, and make decisions about whether to purchase from U.S. producers and/or to import from foreign producers. Since these decisions are often made on a project basis, data were collected from importers/purchasers on their largest project bids. U.S. producers were also asked to provide data on their bids. Finally, traditional lost sales and lost revenue data provide (among other information) the total purchases by purchaser/importers.

Bid data provided by importers

The Commission requested U.S. importers (most of which are also purchasers) to provide data on the number of their bid processes since January 1, 2017 for which they received at least one bid from a U.S. wind tower supplier and at least one bid from a supplier of subject wind towers. Four firms provided these data (table V-1). As can be seen from the table, responding importer/purchasers reported bids from U.S. suppliers and from all subject countries.

Table V-1
Wind towers: U.S. importer/purchasers' projects involving wind towers since January 1, 2017

Item	Number of projects
Total number of bid processes involving bids received from both (i) domestic producers and (ii) suppliers of wind towers from at least one of the four subject countries: Canada, Indonesia, Korea, or Vietnam	***
Number of projects involving bids from U.S. producers	***
Number of projects involving bids from suppliers of wind towers from Canada	***
Number of projects involving bids from suppliers of wind towers from Indonesia	***
Number of projects involving bids from suppliers of wind towers from Korea	***
Number of projects involving bids from suppliers of wind towers from Vietnam	***
Number of projects involving bids from suppliers of wind towers from other countries	***

Note.—This table includes data from ***.

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

Additionally, U.S. importers were asked to provide information on their five largest bid processes involving wind towers since January 1, 2017, in which they had received at least one bid from a supplier of domestic wind towers and at least one bid from a supplier of wind towers produced in Canada, Indonesia, Korea, or Vietnam. Three importer/purchasers (***) provided data in the requested format. *** stated that *** could not provide data in the format requested because *** did not purchase on a project basis. ***.

***

U.S. wind tower importer/purchasers *** provided bid data in the format requested by the Commission. *** data are summarized in tables V-2 through V-5. *** data are summarized in tables V-6 through V-10. *** data are summarized in table V-11. In the tables, initial bid prices reported on an f.o.b. U.S. market basis represent the initial (ex-works) price plus international shipment, insurance, and freight costs, while unit costs reported on a total value basis include any reported in-land shipment and logistics costs within the United States.

***.[24]

[24] See email from ***.

Table V-2
Wind towers: * 1st-largest ***

Bidding supplier	Country of origin of wind tower	Number of towers bid on	Initial bid price, FOB U.S. market basis (dollars per tower)	Estimated inland freight, logistics, and transportation costs	Total bid cost per tower	Contracted number of towers	Purchase cost per tower	Reasons bid was accepted or rejected
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***

Note.—***.

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

Table V-3
Wind towers: * 2nd-largest ***

Bidding supplier	Country of origin of wind tower	Number of towers bid on	Initial bid price, FOB U.S. market basis (dollars per tower)	Estimated inland freight, logistics, and transportation costs	Total bid cost per tower	Contracted number of towers	Purchase cost per tower	Reasons bid was accepted or rejected
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***

Note.—***.

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

Table V-4
Wind towers: * 3rd-largest ***

Bidding supplier	Country of origin of wind tower	Number of towers bid on	Initial bid price, FOB U.S. market basis (dollars per tower)	Estimated inland freight, logistics, and transportation costs	Total bid cost per tower	Contracted number of towers	Purchase cost per tower	Reasons bid was accepted or rejected
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***

Note.— ***.

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

Table V-5
Wind towers: * 4th-largest ***

Bidding supplier	Country of origin of wind tower	Number of towers bid on	Initial bid price, FOB U.S. market basis (dollars per tower)	Estimated inland freight, logistics, and transportation costs	Total bid cost per tower	Contracted number of towers	Purchase cost per tower	Reasons bid was accepted or rejected
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***

Note.—***.

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

Table V-6
Wind towers: * 1st-largest purchase**

Bidding supplier	Country of origin of wind tower	Number of towers bid on	Initial bid price, FOB U.S. market basis (dollars per tower)	Estimated inland freight, logistics, and transportation costs	Total bid cost per tower	Contracted number of towers	Purchase cost per tower	Reasons bid was accepted or rejected
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***

Note.—This bid process ended in ***, was for ***. Also, please note that "landed" cost refers to "delivered" cost.
Note.—***.

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

Table V-7
Wind towers: * 2nd-largest purchase**

Bidding supplier	Country of origin of wind tower	Number of towers bid on	Initial bid price, FOB U.S. market basis (dollars per tower)	Estimated inland freight, logistics, and transportation costs	Total bid cost per tower	Contracted number of towers	Purchase cost per tower	Reasons bid was accepted or rejected
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***

Note.—This bid process ended in ***, was for ***. ***.

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

Table V-8
Wind towers: * 3rd-largest purchase**

Bidding supplier	Country of origin of wind tower	Number of towers bid on	Initial bid price, FOB U.S. market basis (dollars per tower)	Estimated inland freight, logistics, and transportation costs	Total bid cost per tower	Contracted number of towers	Purchase cost per tower	Reasons bid was accepted or rejected
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***

Note.—This bid process ended in ***, was for ***.
Note.—***.

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

Table V-9
Wind towers: * 4th-largest purchase**

Bidding supplier	Country of origin of wind tower	Number of towers bid on	Initial bid price, FOB U.S. market basis (dollars per tower)	Estimated inland freight, logistics, and transportation costs	Total bid cost per tower	Contracted number of towers	Purchase cost per tower	Reasons bid was accepted or rejected
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***

Note.—This bid process ended in ***, was for ***.

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

Table V-10
Wind towers: * 5th-largest purchase**

Bidding supplier	Country of origin of wind tower	Number of towers bid on	Initial bid price, FOB U.S. market basis (dollars per tower)	Estimated inland freight, logistics, and transportation costs	Total bid cost per tower	Contracted number of towers	Purchase cost per tower	Reasons bid was accepted or rejected
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***

Note.—This bid process ended in ***, was for ***.
Note.—***.

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

Table V-11
Wind towers: * largest purchase**

Bidding supplier	Country of origin of wind tower	Number of towers bid on	Initial bid price, FOB U.S. market basis (dollars per tower)	Estimated inland freight, logistics, and transportation costs	Total bid cost per tower	Contracted number of towers	Purchase cost per tower	Reasons bid was accepted or rejected
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***
***	***	***	***	***	***	***	***	***

Note.—This bid process ended in ***, was for ***.

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

Tables V-12 and V-13 summarize instances of underbidding and overbidding of U.S. producers by subject imports, at bids made to ***, on an f.o.b.-equivalent basis (V-12) and delivered-equivalent basis (V-13). Underbidding and overbidding were measured by average bid prices from each source at the project level, and then compared. Additional costs (i.e., logistics and freight) costs can be a large component of wind towers prices. Table V-12 uses a constructed f.o.b. price (the requested "initial price" plus the costs of getting the wind towers to the United States) to calculate instances of underbidding and overbidding. Table V-13 uses the total, or delivered, cost (including bid price plus all additional U.S. transportation and other costs) to calculate instances of higher and lower total bid costs. As shown in the tables, subject imports were more likely to underbid than overbid on both an f.o.b. equivalent basis and on a delivered-equivalent basis, although imports from ***.

Table V-12
Wind towers: Instances of underbidding/overbidding in f.o.b. price, and the range and average of margins, by country, January 2017 through March 2020

	Underbidding, f.o.b. equivalent price				
				Margin range (percent)	
Source	Number of comparisons	Quantity (towers)	Average margin (percent)	Min	Max
Canada	***	***	***	***	***
Indonesia	***	***	***	***	***
Korea	***	***	***	***	***
Vietnam	***	***	***	***	***
Total, underbidding, offer price	21	1,719	12.9	1.9	41.0
	Overbidding, f.o.b. equivalent price				
				Margin range (percent)	
Source	Number of comparisons	Quantity (towers)	Average margin (percent)	Min	Max
Canada	***	***	***	***	***
Indonesia	***	***	***	***	***
Korea	***	***	***	***	***
Vietnam	***	***	***	***	***
Total, overbidding, offer price	4	710	(15.5)	(12.5)	(19.3)

Note.—F.o.b. price refers to initial price plus estimated freight and logistics costs to U.S. port. Data compiled from responses of ***.

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

Table V-13
Wind towers: Instances of higher/lower total cost (f.o.b. price plus all additional costs), and the range and average of margins, by country, January 2017 through March 2020

Source	Import lower total cost				
	Number of comparisons	Quantity (towers)	Average margin (percent)	Margin range (percent)	
				Min	Max
Canada	***	***	***	***	***
Indonesia	***	***	***	***	***
Korea	***	***	***	***	***
Vietnam	***	***	***	***	***
Total, underbidding, offer price	21	1,719	9.2	1.9	31.6
Source	**Import higher total cost**				
	Number of comparisons	**Quantity (towers)**	**Average margin (percent)**	**Margin range (percent)**	
				Min	**Max**
Canada	***	***	***	***	***
Indonesia	***	***	***	***	***
Korea	***	***	***	***	***
Vietnam	***	***	***	***	***
Total, overbidding, offer price	4	710	(15.5)	(12.5)	(19.3)

Note.—Total cost refers to the f.o.b. price in table V-12 plus inland freight and other costs. Data compiled from responses of ***. ***.

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

***

***.

***.

*** largest reported bid process was ***, as shown in table V-14. *** were chosen based on available release schedule, and that ***.

Table V-14
Wind towers: * 1st-largest bid process**

Bidding supplier	Country of origin of wind tower	Anticipated number of towers purchased at time of project planning	Initial bid price (dollars per tower)	Estimated logistics (dollars per tower)	Total purchase cost per tower (dollars per tower)
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***

Note.—***.
Note.— ***.

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

*** second largest bid process was for ***, as shown in table V-15. ***.

Table V-15
Wind towers: * 2nd-largest bid process**

Bidding supplier	Country of origin of wind tower	Anticipated number of towers purchased at time of project planning	Initial bid price (dollars per tower)	Estimated logistics (dollars per tower)	Total purchase cost per tower (dollars per tower)
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***

Note.—***.
Note.— ***.

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

*** third-largest bid process was for ***, as shown in table V-16. ***.

Table V-16
Wind towers: * 3rd-largest bid process**

Bidding supplier	Country of origin of wind tower	Anticipated number of towers purchased at time of project planning	Initial bid price (dollars per tower)	Estimated logistics (dollars per tower)	Total purchase cost per tower (dollars per tower)
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***

Note.—***.
Note.— ***.

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

*** fourth-largest bid process was for ***, as shown in table V-17. ***.

Table V-17
Wind towers: * 4th-largest bid process**

Bidding supplier	Country of origin of wind tower	Anticipated number of towers purchased at time of project planning	Initial bid price (dollars per tower)	Estimated logistics (dollars per tower)	Total purchase cost per tower (dollars per tower)
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***

Note.—***.
Note.— ***.

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

*** fifth-largest bid process was for ***, as shown in table V-18. ***.

Table V-18
Wind towers: * 5th-largest bid process**

Bidding supplier	Country of origin of wind tower	Anticipated number of towers purchased at time of project planning	Initial bid price (dollars per tower)	Estimated logistics (dollars per tower)	Total purchase cost per tower (dollars per tower)
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***

Note.—***.
Note.— ***.

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

***.

*** Data from *** are summarized in tables V-19 to V-21.

Table V-19
Wind towers: *

Bidding supplier	Country of origin of wind tower	Initial bid price (dollars per tower)	Transportation costs (dollars per tower)	Total bid cost (dollars per tower)	Won bid?
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***

Note.—Transportation costs include both inland transportation costs and transportation costs to the U.S. market, if applicable. See email from ***.
Note.—***.

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

Table V-20
Wind towers: *

Bidding supplier	Country of origin of wind tower	Initial bid price (dollars per tower)	Transportation costs (dollars per tower)	Total bid cost (dollars per tower)	Won bid?
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***

Note.—Transportation costs include both inland transportation costs and transportation costs to the U.S. market, if applicable. See email from ***.
Note.—***.

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

Table V-21
Wind towers: *

Bidding supplier	Country of origin of wind tower	Initial bid price (dollars per tower)	Transportation costs (dollars per tower)	Total bid cost (dollars per tower)	Won bid?
***	***	***	***	***	***
***	***	***	***	***	***

Note.—Transportation costs include both inland transportation costs and transportation costs to the U.S. market, if applicable. See email from ***.
Note.—***.

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

***.

Largest projects

U.S. producers and importer/purchasers were asked to list the top five projects for which they had bid (if a U.S. producer) or for which they had used wind towers (if an importer/purchaser). *** top five projects involved producing wind towers for ***. *** listed its largest project as being with *** and its second-largest with ***. *** listed its five largest wind energy projects, and stated that they were supplied by ***. *** stated that its five largest projects were supplied ***.

Bid data from U.S. producers

In addition, the Commission requested that U.S. producers provide data on the fifteen largest wind tower projects that they bid on since January 1, 2017. These data are summarized in table V-22. ***. ***. ***.

*** ***.

***. In cases where importers also reported bids (above), the data seem broadly consistent with what importers reported, ***.

Table V-22
Wind towers: U.S. producers' top 15 bids

Firm	Number of towers bid	Weighted average f.o.b. bid price per tower	Number of towers contracted	Weighted average f.o.b. price per tower in contracts
***	***	***	***	***
***	***	***	***	***
***	***	***	***	***
***	***	***	***	***
***	***	***	***	***

Note.—***.

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

Lost sales and lost revenue

In the preliminary phase of the investigation, the Commission requested that U.S. producers of wind towers report purchasers with which they experienced instances of lost sales or lost revenue due to competition from imports of wind towers from subject countries since January 1, 2016. Of the six responding U.S. producers, four reported that they had to either reduce prices or roll back announced price increases, and the same four firms reported that they had lost sales. ***. In the petition, two U.S. producers (***) submitted information on 42 bids at 6 purchasers.

In the final phase of the investigation, *** U.S. producers reported that they had to either reduce prices or roll back announced price increases, and had lost sales. *** reported that they had not done so.

As noted earlier, purchasers are also often importers, and mix purchasing U.S.-produced wind towers (and sometimes imports) with importing wind towers themselves. Thus, purchasers were asked to report both their purchases of wind towers, and their imports of wind towers (table V-23). Two firms reporting purchases from U.S. producers reported that their share of total purchases from U.S. producers declined between 2017 and 2019, while two such firms reported that their share of total purchases from U.S. producers increased over the same period.

Table V-23
Wind towers: Purchasers' responses to purchasing patterns

	Purchases and imports in 2017-2019 (towers)			Change in domestic share (pp, 2017-19)	Change in subject country share (pp, 2017-19)
Purchaser	Domestic	Subject	All other		
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Total	***	***	***	***	***

Note.—***.
Note.—All other includes all other sources and unknown sources. Percentage points (pp) change describes the change in the share of the firm's total purchases of domestic and/or subject country imports between first and last years.

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

As seen in tables V-24 and V-25, of the seven responding purchasers, *** reported that, since 2017, they had purchased imported wind towers from at least one subject country instead of U.S.-produced product.[25] *** of these purchasers reported that subject import prices were lower than U.S.-produced product. *** firms indicated that price was the primary reason for choosing imported product rather than U.S. product. One of these firms (***), along with ***, cited reasons including quality, availability, pace of supply, purchasing terms, and transportation costs.[26] ***

[25] ***.
[26] ***.

***.[27]

When asked if U.S. producers had reduced prices in order to compete with subject imports, all purchasers indicated that they did not know, or that U.S. producers had not done so.

[27] See email from ***.

Table V-24
Wind towers: Purchasers' responses to purchasing subject imports instead of domestic product

Purchaser	Purchased imports instead of domestic (Y/N)	Imports priced lower (Y/N)	If purchased imports instead of domestic, was price a primary reason		
			Y/N	If Yes, quantity purchased instead of domestic (towers)	If No, non-price reason
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Total	Yes--4; No--3	Yes--4; No--1	Yes--3; No--2	***	

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

Table V-25
Wind towers: Purchasers' responses to purchasing subject instead of domestic, by country

Source	Count of purchasers reporting subject instead of domestic	Count of purchasers reported that imports were priced lower	Count of purchasers reporting that price was a primary reason for shift	Quantity purchased (towers)
Canada	2	1	---	***
Indonesia	2	2	2	***
Korea	3	3	2	***
Vietnam	1	1	---	***
Any subject source	4	4	3	***

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

Part VI: Financial experience of U.S. producers

Background

Six U.S. producers (Arcosa, Broadwind, GRI Towers, Marmen, Ventower, and Vestas) reported usable financial results on their wind tower operations.[1] [2] As a share of overall wind tower sales value in 2019, *** accounted for the largest company-specific shares (*** percent and *** percent, respectively), followed by *** (*** percent), *** (*** percent), *** (*** percent) and *** (*** percent).

On November 1, 2018, the wind tower operations of Trinity, along with several other business units of that company, were spun off as part of a corporate restructuring to form Arcosa, a new, publicly traded company.[3] In 2019, Broadwind announced a number of strategic objectives for the company as a whole, including increased diversification of its customer base and overall product line.[4] As discussed in Part III of this report, U.S. producers undertook a variety of actions/initiatives related to their wind tower operations during 2017-19. The manner in which these actions/initiatives impacted company-specific financial results is discussed further below.

[1] Arcosa, Broadwind, and Vestas are publicly-traded companies. GRI Towers, Marmen, and Ventower are privately held. Vestas is the only U.S. producer that is vertically integrated with respect to its wind tower production and overall wind energy operations. With the exception of ***, which specified IFRS (International Financial Reporting Standards) as its accounting basis, U.S. producers reported their wind tower financial results based on GAAP (Generally Accepted Accounting Principles). All U.S. producers reported their annual financial results for calendar-year periods. Data changes pursuant to a staff review of *** final-phase U.S. producer questionnaire, specifically the company's reported financial results, are reflected in this and other relevant sections of this report. USITC auditor notes (prehearing).

[2] U.S. producers indicated that wind towers represent all or the substantial majority of relevant establishment operations. U.S. producers' questionnaires, responses to III-5.

[3] Arcosa 2018 10-K, p. 3. ***. Submission by ***, April 23, 2020.

[4] Broadwind 2019 10-K, pp. 5-6. ***. Submission by ***, April 23, 2020.

Operations on wind towers

Table VI-1 presents wind tower financial results specific to merchant market operations (commercial sales only) and table VI-2 presents corresponding changes in average per tower values. Table VI-3 presents wind tower financial results specific to total market operations (combined commercial sales and transfers) and table VI-4 presents corresponding changes in average per tower values. Company-specific financial information is presented in table VI-5.[5]

Revenue

In 2019 and with regard to total market operations, commercial sales and transfer sales accounted for *** percent and *** percent of total sales value, respectively.[6] [7] Vestas was the *** U.S. producer to report transfer sales.[8]

[5] The Commission's variance analysis is generally more meaningful when product mix remains the same throughout the period. The U.S. industry's average per tower sales values reflect the impact of changes in product mix, as well as changes in company-specific market share. Because its utility under these circumstances appears limited, a variance analysis is not presented for either category of financial results (merchant market and/or total market).

[6] Changes in GAAP revenue recognition rules during the period impacted the timing of U.S. producers' wind tower revenue recognition to some extent. As described by an Arcosa company official, "As of 2018, when the revenue rules changed . . . We recognized them {wind tower sales} as soon as we put them in the yard because we have an FOB agreement and selling price, so our obligations have been accomplished, title and risk of loss have passed at that time . . . Prior to that, it was not, because it was still in ex works, and so, as long as the PO had the end date and that's when we put it in the yard, risk of loss and title passed at that time as well." Conference transcript, p. 65 (Cole).

[7] With very limited exceptions, U.S. producers do not receive progress payments and are responsible for supplying necessary working capital in order to produce wind towers. See, e.g., conference transcript, p. 66 (Cole) and Petitioners' postconference brief, Exhibit 1, p. 59.

[8] ***. *** responses to ITC staff follow up questions, July 26, 2019. ***.

Table VI-1
Wind towers: Results of operations of U.S. producers, merchant market, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
Commercial sales	***	***	***
	Value (1,000 dollars)		
Commercial sales	***	***	***
Cost of goods sold.-- Steel plate	***	***	***
Flanges	***	***	***
Other raw materials	***	***	***
Total raw materials	***	***	***
Direct labor	***	***	***
Other factory costs	***	***	***
Total COGS	***	***	***
Gross profit or (loss)	***	***	***
SG&A expenses	***	***	***
Operating income or (loss)	***	***	***
Interest expense	***	***	***
Other expenses	***	***	***
Other income items	***	***	***
Net income or (loss)	***	***	***
Depreciation/amortization	***	***	***
Estimated cash flow	***	***	***
	Ratio to net sales (percent)		
Cost of goods sold.-- Steel plate	***	***	***
Flanges	***	***	***
Other raw materials	***	***	***
Total raw materials	***	***	***
Direct labor	***	***	***
Other factory costs	***	***	***
Total COGS	***	***	***
Gross profit or (loss)	***	***	***
SG&A expenses	***	***	***
Operating income or (loss)	***	***	***
Net income or (loss)	***	***	***

Table continued on next page.

Table VI-1—Continued
Wind towers: Results of operations of U.S. producers, merchant market, 2017-19

Item	Calendar year		
	2017	2018	2019
	Ratio to total COGS (percent)		
Cost of goods sold.-- Steel plate	***	***	***
Flanges	***	***	***
Other raw materials	***	***	***
Total raw materials	***	***	***
Direct labor	***	***	***
Other factory costs	***	***	***
Total COGS	***	***	***
	Average value (per tower)		
Commercial sales	***	***	***
Cost of goods sold.-- Steel plate	***	***	***
Flanges	***	***	***
Other raw materials	***	***	***
Total raw materials	***	***	***
Direct labor	***	***	***
Other factory costs	***	***	***
Total COGS	***	***	***
Gross profit or (loss)	***	***	***
SG&A expenses	***	***	***
Operating income or (loss)	***	***	***
Net income or (loss)	***	***	***
	Number of firms reporting		
Data	5	5	5
Operating losses	***	***	***
Net losses	***	***	***

Note.--Based on this table, the following amounts are calculated for “effective conversion price” (total sales value minus total raw materials) and conversion cost (direct labor cost plus other factory costs):

	Ratio to net sales (percent)		
Effective conversion price	***	***	***
Conversion cost	***	***	***
	Ratio to total COGS (percent)		
Conversion cost	***	***	***
	Average value (per tower)		
Conversion cost	***	***	***

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

Table VI-2
Wind towers: Changes in AUV's, merchant market, 2017-19

Item	Between calendar years		
	2017-19	2017-18	2018-19
	Change in AUVs (percent)		
Commercial sales	***	***	***
Cost of goods sold.--			
Steel plate	***	***	***
Flanges	***	***	***
Other raw materials	***	***	***
Total raw materials	***	***	***
Direct labor	***	***	***
Other factory costs	***	***	***
Total COGS	***	***	***
	Change in AUVs (dollars per tower)		
Commercial sales	***	***	***
Cost of goods sold.--			
Steel plate	***	***	***
Flanges	***	***	***
Other raw materials	***	***	***
Total raw materials	***	***	***
Direct labor	***	***	***
Other factory costs	***	***	***
Total cost of goods sold	***	***	***
Gross profit or (loss)	***	***	***
SG&A expenses	***	***	***
Operating income or (loss)	***	***	***
Net income or (loss)	***	***	***

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

Table VI-3
Wind towers: Results of operations of U.S. producers, total market, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
Commercial sales	***	***	***
Transfers to related firms	***	***	***
Total net sales	2,666	2,698	2,964
	Value (1,000 dollars)		
Commercial sales	***	***	***
Transfers to related firms	***	***	***
Total net sales	843,586	859,598	995,108
Cost of goods sold.--			
Steel plate	307,526	360,483	411,526
Flanges	43,384	42,852	58,512
Other raw materials	149,532	155,854	185,125
Total raw materials	500,442	559,189	655,163
Direct labor	89,302	98,581	112,036
Other factory costs	137,929	131,595	137,382
Total COGS	727,673	789,365	904,581
Gross profit or (loss)	115,913	70,233	90,527
SG&A expenses	28,110	25,317	28,143
Operating income or (loss)	87,803	44,916	62,384
Interest expense	***	***	***
Other expenses	***	***	***
Other income items	***	***	***
Net income or (loss)	85,024	50,861	57,084
Depreciation/amortization	40,715	41,460	39,420
Estimated cash flow	125,739	92,321	96,504
	Ratio to net sales (percent)		
Steel plate	36.5	41.9	41.4
Flanges	5.1	5.0	5.9
Other raw materials	17.7	18.1	18.6
Total raw materials	59.3	65.1	65.8
Direct labor	10.6	11.5	11.3
Other factory costs	16.4	15.3	13.8
Cost of goods sold	86.3	91.8	90.9
Gross profit or (loss)	13.7	8.2	9.1
SG&A expenses	3.3	2.9	2.8
Operating income or (loss)	10.4	5.2	6.3
Net income or (loss)	10.1	5.9	5.7

Table continued on next page.

Table VI-3—Continued
Wind towers: Results of operations of U.S. producers, total market, 2017-19

Item	Calendar year		
	2017	2018	2019
	Ratio to total COGS (percent)		
Steel plate	42.3	45.7	45.5
Flanges	6.0	5.4	6.5
Other raw materials	20.5	19.7	20.5
Total raw materials	68.8	70.8	72.4
Direct labor	12.3	12.5	12.4
Other factory costs	19.0	16.7	15.2
Total COGS	100.0	100.0	100.0
	Average value (per tower)		
Commercial sales	***	***	***
Transfers to related firms	***	***	***
Total net sales	316,424	318,606	335,731
Cost of goods sold.--			
Steel plate	115,351	133,611	138,841
Flanges	16,273	15,883	19,741
Other raw materials	56,089	57,766	62,458
Total raw materials	187,713	207,261	221,040
Direct labor	33,497	36,539	37,799
Other factory costs	51,736	48,775	46,350
Total COGS	272,946	292,574	305,189
Gross profit or (loss)	43,478	26,032	30,542
SG&A expenses	10,544	9,384	9,495
Operating income or (loss)	32,934	16,648	21,047
Net income or (loss)	31,892	18,851	19,259
	Number of firms reporting		
Data	6	6	6
Operating losses	2	2	2
Net losses	2	3	1

Note.--Based on this table, the following amounts are calculated for “effective conversion price” (total sales value minus total raw materials) and conversion cost (direct labor cost plus other factory costs):

	Ratio to net sales (percent)		
Effective conversion price	40.7	34.9	34.2
Conversion cost	26.9	26.8	25.1
	Ratio to total COGS (percent)		
Conversion cost	31.2	29.2	27.6
	Average value (per tower)		
Conversion cost	85,233	85,314	84,149

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

Table VI-4
Wind towers: Changes in AUVs, total market, 2017-19

Item	Between calendar years		
	2017-19	2017-18	2018-19
	Change in AUVs (percent)		
Commercial sales	***	***	***
Transfers to related firms	***	***	***
Total average sales value	▲6.1	▲0.7	▲5.4
Cost of goods sold.--			
Steel plate	▲20.4	▲15.8	▲3.9
Flanges	▲21.3	▼(2.4)	▲24.3
Other raw materials	▲11.4	▲3.0	▲8.1
Total raw materials	▲17.8	▲10.4	▲6.6
Direct labor	▲12.8	▲9.1	▲3.4
Other factory costs	▼(10.4)	▼(5.7)	▼(5.0)
Total COGS	▲11.8	▲7.2	▲4.3
	Change in AUVs (dollars per tower)		
Commercial sales	***	***	***
Transfers to related firms	***	***	***
Total average sales value	▲19,308	▲2,182	▲17,126
Cost of goods sold.--			
Steel plate	▲23,490	▲18,260	▲5,230
Flanges	▲3,468	▼(390)	▲3,858
Other raw materials	▲6,369	▲1,678	▲4,691
Total raw materials	▲33,327	▲19,548	▲13,780
Direct labor	▲4,302	▲3,042	▲1,260
Other factory costs	▼(5,386)	▼(2,961)	▼(2,425)
Total COGS	▲32,244	▲19,629	▲12,615
Gross profit or (loss)	▼(12,936)	▼(17,447)	▲4,511
SG&A expenses	▼(1,049)	▼(1,160)	▲111
Operating income or (loss)	▼(11,887)	▼(16,286)	▲4,399
Net income or (loss)	▼(12,633)	▼(13,041)	▲408

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

Table VI-5
Wind towers: Results of operations of U.S. producers, by firm, 2017-19

Item	Calendar year		
	2017	2018	2019
	Total net sales (towers)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	2,666	2,698	2,964
	Total net sales (1,000 dollars)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	843,586	859,598	995,108
	Cost of goods sold (1,000 dollars)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	727,673	789,365	904,581
	Gross profit or (loss) (1,000 dollars)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	115,913	70,233	90,527

Table continued on next page.

Table VI-5—Continued
Wind towers: Results of operations of U.S. producers, by firm, 2017-19

Item	Calendar year		
	2017	2018	2019
	SG&A expenses (1,000 dollars)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	28,110	25,317	28,143
	Operating income or (loss) (1,000 dollars)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	87,803	44,916	62,384
	Net income or (loss) (1,000 dollars)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	85,024	50,861	57,084
	Effective conversion price to net sales ratio (percent)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	40.7	34.9	34.2

Table continued on next page.

Table VI-5—Continued
Wind towers: Results of operations of U.S. producers, by firm, 2017-19

Item	Calendar year		
	2017	2018	2019
	Conversion cost to net sales ratio (percent)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	26.9	26.8	25.1
	COGS to net sales ratio (percent)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	86.3	91.8	90.9
	Gross profit or (loss) to net sales ratio (percent)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	13.7	8.2	9.1
	SG&A expenses to net sales ratio (percent)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	3.3	2.9	2.8

Table continued on next page.

Table VI-5—Continued
Wind towers: Results of operations of U.S. producers, by firm, 2017-19

Item	Calendar year		
	2017	2018	2019
	Operating income or (loss) to net sales ratio (percent)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	10.4	5.2	6.3
	Net income or (loss) to net sales ratio (percent)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	10.1	5.9	5.7
	Unit net sales value (dollars per tower)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	316,424	318,606	335,731
	Unit steel plate cost (dollars per tower)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	115,351	133,611	138,841

Table continued on next page.

Table VI-5—Continued
Wind towers: Results of operations of U.S. producers, by firm, 2017-19

Item	Calendar year		
	2017	2018	2019
	Unit flanges cost (dollars per tower)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	16,273	15,883	19,741
	Unit other raw material cost (dollars per tower)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	56,089	57,766	62,458
	Unit total raw material cost (dollars per tower)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	187,713	207,261	221,040
	Unit direct labor (dollars per tower)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	33,497	36,539	37,799

Table continued on next page.

Table VI-5—Continued
Wind towers: Results of operations of U.S. producers, by firm, 2017-19

Item	Calendar year		
	2017	2018	2019
	Unit other factory costs (dollars per tower)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	51,736	48,775	46,350
	Unit conversion costs (dollars per tower)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	85,233	85,314	84,149
	Unit COGS (dollars per tower)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	272,946	292,574	305,189
	Unit gross profit or (loss) (dollars per tower)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	43,478	26,032	30,542

Table continued on next page.

Table VI-5—Continued
Wind towers: Results of operations of U.S. producers, by firm, 2017-19

Item	Calendar year		
	2017	2018	2019
	Unit SG&A expenses (dollars per tower)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	10,544	9,384	9,495
	Unit operating income or (loss) (dollars per tower)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	32,934	16,648	21,047
	Unit net income or (loss) (dollars per tower)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	31,892	18,851	19,259

Note 1.--***.
Note 2.--Effective conversion price to net sales ratio equals sales value minus total raw material cost (numerator) divided by total sales value (denominator). It is also the inverse of the raw material cost to net sales ratio; i.e., in the same way that that the COGS to net sales ratio is the inverse of the gross profit to net sales ratio.
Note 3.--Conversion cost is the sum of direct labor and other factory costs.
Note 4.--***.

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

Quantity

Merchant market and total market operations both reported modest increases in total sales quantity in 2018 followed by larger increases in 2019. On a company-specific basis, the directional pattern was mixed: *** reported relatively large percentage sales quantity *** in 2018 followed by *** in 2019, while the other U.S. producers reported *** sales quantities throughout 2017-19.[9]

Value

Average per tower commercial sales value moved within a relatively wide range during 2017-19: declining in 2018 and then increasing in 2019 to a level somewhat higher than reported in 2017. Inclusive of ***, overall average per tower sales value increased marginally in 2018, followed by a relatively larger increase in 2019.

In general, company-specific changes in average sales value reflect a combination of factors: variations in product mix (e.g., height and other product features),[10] changes in underlying input costs passed through directly and/or indirectly in the sales price,[11] and/or changes in the underlying conversion price. Most U.S. producers indicated that they experienced changes in product mix to some extent during 2017-19. ***.[12]

[9] ***. Email with attachments from ***, April 23, 2020. ***. Email from *** on behalf of ***, August 5, 2019.

[10] Conference transcript, pp. 63-64 (Cole). Email from *** on behalf of ***, August 5, 2019. Submission by ***, April 23, 2020.

[11] While not the case for all U.S. producers, directional changes in average per tower sales value and average total raw material cost were generally the same: declining in 2018 and increasing in 2019. Raw material procurement and pass through is discussed further below (see *Cost of goods sold and gross profit or loss* section).

[12] Email from *** on behalf of ***, August 5, 2019.

U.S. producers vary in terms of how underlying sales values are determined and whether a negotiated "conversion price" is directly relevant. Pass through of primary material costs, in varying degrees and pursuant to customer-specific arrangements, can take place with or without a formal conversion price contract.

Broadwind negotiates conversion contracts in which raw material costs are passed through and only the conversion price is negotiated.[13] ***.[14] For the other merchant market U.S. producers, conversion price contracts are either not directly negotiated or reflect only a portion of their sales. ***.[15] *** reported that they do not formally negotiate conversion price contracts.[16] As discussed further below, ***. ***, testimony at the Commission's staff conference indicates that conversion price is a subject of negotiation. As described by an Arcosa company official, ". . . because of the pass through nature of the steel costs in sales contracts, the negotiations focus on the conversion price of the tower. As a result, we are often asked to renegotiate the conversion portion of the price in the contract . . .".[17] While *** sales are reportedly not directly based on conversion price contracts, at least some of the company's bids were based on conversion prices.[18]

[13] Hearing transcript, p. 27 (Blashford). Broadwind's conversion price ". . . includes the labor to build and assemble the tower as well as for paint and welding consumables." Hearing transcript, p. 28 (Blashford).

[14] *** U.S. producer questionnaire, response to IV-7(b).

[15] *** U.S. producer questionnaire, response to IV-7(b).

[16] *** U.S. producer questionnaire, responses to IV-7(b).

[17] Conference transcript, p. 30 (Cole).

[18] Petitioners posthearing brief (Exhibit 1), p. 53.

Cost of goods sold and gross profit or loss

Raw materials

For merchant market operations, total raw material cost accounts for the single largest component of wind tower cost of goods sold (COGS), ranging from *** percent of total COGS (2018) to *** percent (2019).[19] Steel plate, the largest subcategory of raw material, ranged from *** percent of merchant market COGS (2017) to *** percent (2019), followed by other raw material costs, ranging from *** percent of total COGS (2018) to *** percent (2017). Flanges ranged from *** percent of total COGS (2018) to *** percent (2019).[20] [21]

While differing in terms of magnitude, average per tower total raw material cost for merchant market and total market operations both increased in 2018 and 2019. On a company-specific basis, table VI-5 shows that U.S. producers reported a relatively wide range of average per tower total raw material costs with directional patterns of change mixed between 2017 and 2018 (increasing and decreasing) and then more uniform between 2018 and 2019 (primarily increasing).

[19] For total market operations, total raw material costs ranged from *** percent of COGS (2017) to *** percent (2019) (see table VI-3).

[20] For total market operations, steel plate ranged from *** percent of total COGS (2017) to *** percent (2018), other raw material costs ranged from *** percent (2018) to *** percent (2017 and 2019). Flanges ranged from *** percent of total COGS (2018) to *** percent (2019) (see table VI-3). ***. Email with attachment from ***, April 21, 2020. ***. USITC auditor notes (final phase).

[21] *** are the *** U.S. producers that purchase material inputs from related suppliers. ***. *** U.S. producer questionnaire, response to III-7. ***. *** U.S. producer questionnaire, response to III-7. In addition to U.S.-produced wind tower sections, the wind towers sold by Marmen incorporate wind tower sections produced by a Canadian affiliate. Marmen confirmed that the sales and corresponding costs reported in its U.S. producer questionnaire reflect its U.S. operations only. Conference transcript, pp. 169-170 (Pellerin).

*** reported the largest percentage increase in average total raw material cost in 2018.[22] ***, whose average total raw material costs both increased in 2019, attributed variations in their raw material costs, in general, to ***.[23] *** was the *** U.S. producer to report lower average total raw material cost in 2019, reflecting ***.[24]

[22] ***.

[23] ***. Submission by ***, April 23, 2020. With regard to the pattern of its steel costs specifically, an Arcosa company official noted that "for our customers, for their 2017 and 2018 steel buys, we actually secured that steel from them in April of 2016, well before the {232} tariffs ever took place, and then, when you look at the 2019 buy, we actually secured that purchase price for them in December of 2017, well before the Section 232 tariffs came in place." Hearing transcript, p. 99 (Cole).

***. Submission by ***, April 23, 2020.

[24] Noting that the Section 232 tariffs increased steel plate prices in general, Marmen stated "We purchase most of our steel plate from U.S. mills and managed to lock in favorable prices before the 232 tariffs went into effect." Hearing transcript, pp. 159-160 (Pellerin). ***. Submission by ***. ***. Ibid.

In conjunction with differences in company-specific product mix, raw material costs also reflect different arrangements in which U.S. producers or their customers, in varying degrees, are responsible for raw material procurement sourcing. Note: The term "pass through" can be applied, in general, to various procurement arrangements.

***. Of these procurement arrangements, the first reflects the majority of *** activity.[25] Contrasting its sales and procurement process with that of Broadwind (i.e., conversion contract and directed buys of material inputs), Arcosa stated "The difference is that we actually go out and procure the steel on our customers' behalf. Arcosa as a whole is a very large purchaser when you combine all our businesses of steel plate, so we usually get preferential pricing in the market. So the way it works is on an annual basis we will go out and solicit all the mills for their best steel pricing. We will work with our customers to get their approval on that particular steel price before we finalize the deal. And so, if our customer gives the approval and they're happy with the price that we've negotiated, then we'll actually sign the steel contract and that'll roll into our contracts with them. So, if it was a long-term contract and we had a base-level steel price and the steel price we negotiated for the following year was higher . . . that steel would pass through at that higher cost. But, conversely, if we negotiated a lower steel price, then that steel price decrease would pass through as well."[26]

Marmen stated that its procurement process varies by customer and has changed to some extent during the period in terms of the scope of inputs for which it is responsible: ***

[25] *** U.S. producer questionnaire, response to III-4.B.

[26] Hearing transcript, pp. 119-120 (Cole). ***. Submission by ***, April 23, 2020.

***.[27]

***.[28] As described by a Broadwind company official, "The OEMs generally submit a material cost verification sheet with their orders that tells us exactly who to purchase the materials from and at what price to purchase those materials. These materials include steel, internals, door frames and flanges. We have no ability to control these costs."[29]

***

[27] *** U.S. producer questionnaire, response to III.4.B. ***. Ibid. ***. *** U.S. producer questionnaire, response to III.4.C. ***. *** U.S. producer questionnaire, response to III-4.C.

[28] Submission by ***, April 23, 2020.

[29] Hearing transcript, p. 28 (Blashford).

***.[30] ***.[31]

While underlying raw material procurement arrangements vary, as described above, most U.S. producers maintain limited amounts of inventory to meet project-specific production requirements. Inventory carrying costs are also not generally included directly in raw material pass-through arrangements.[32]

Conversion cost

Primary conversion activity, inclusive of initial and secondary material preparation, reflects can fabrication, coating application, and assembly.[33] In addition to factors such as model changes, average per tower conversion cost is impacted by production volume and corresponding capacity utilization.[34] For merchant market operations, total conversion cost (combined direct labor and other factory costs) ranged from *** percent of total COGS

[30] Email with attachments from *** to USITC staff, April 23, 2020. ***. Ibid. ***. Submission by ***, April 30, 2020. ***. Ibid.

[31] *** U.S. producer questionnaire, response to III-4.B. ***. Ibid.

[32] See, e.g., Submission by ***, April 23, 2020; Submission by ***, April 23, 2020; Email with attachments from ***, April 23, 2020; Submission by ***, April 23, 2020; Submission by ***, April 30, 2020.

[33] Conference transcript, p. 17 (Janda).

[34] Conference transcript, p. 71 (Cole); p. 72 (Janda). Email from *** on behalf of ***, August 5, 2019. ***. Email from *** on behalf of ***, August 5, 2019. ***. Email from *** on behalf of ***, August 5, 2019.

(2019) to *** percent (2018). For total market operations, conversion cost ranged from *** percent of total COGS (2019) to *** percent (2017).[35]

U.S. producers reported a mixed (increasing and decreasing) directional pattern of average per tower conversion cost between 2017 and 2018 followed by a more uniform (declining) directional pattern between 2018 and 2019. On a company-specific basis, table VI-5 shows that there was a relatively wide range of company-specific average per tower conversion costs. *** and *** reported the lowest and highest average per tower conversion costs, respectively, with both reporting declining average per tower conversion costs during 2017-19.[36] ***.[37] The other U.S. producers varied in terms of directional change in average per tower conversion cost: ***

[35] Other factory cost is the second largest component of COGS, ranging from *** percent of total COGS (2019) to *** percent (2017) for merchant market operations and *** percent of total COGS (2019) to *** percent (2017) for total market operations. Direct labor, the smallest component of COGS, ranged from *** percent of total COGS (2017) to *** percent (2018) for merchant market operations and *** percent of total COGS (2017) to *** percent (2018) for total market operations.

[36] ***. USITC auditor notes (final phase). ***. Email with attachment from ***, April 21, 2020. ***.

[37] ***. Email with attachments from ***, April 23, 2020.

average conversion cost remained within a relatively narrow range,[38] while the average conversion costs of *** covered wider ranges.[39] [40] [41]

Gross profit or loss

As noted previously and while U.S. producers differ, primary raw material costs appear to be largely passed through, either directly or indirectly, in the sales price. As such, conversion

[38] Regarding the pattern of its average per tower conversion costs in general, ***. Submission by ***, April 23, 2020.

[39] ***. Earlier in the period the company made substantial investments and expanded its workforce. Hearing transcript, p. 26 (Blashford). With respect to the impact of a purchaser's buying/ordering pattern between the third quarter 2017 to the third quarter 2019, a Broadwind company official described underutilized capacity and layoffs. Hearing transcript, pp. 27-29 (Blashford). ***. Submission by ***, April 23, 2020. ***. Ibid.

[40] *** average per tower conversion cost declined to its lowest level in 2018 and then increased to its highest level in 2019. ***. Submission by ***, April 23, 2020. ***. Ibid.

[41] ***. Submission by ***, April 30, 2020.

price (actual or effective) and corresponding conversion costs, in conjunction with the number of towers sold, appear to be the most important variables in terms of explaining changes in the U.S. industry's total gross profit during 2017-19. For merchant market operations, the contraction in gross profit ratio (total gross profit divided by total sales) in 2018 reflects a decline in effective conversion price to net sales ratio and an increase in conversion cost to net sales ratio. In 2019, the smaller contraction in gross profit ratio reflects a continued decline in effective conversion price to net sales ratio, which was almost but not entirely offset by a decline in the conversion cost to net sales ratio.

Table VI-5 shows that U.S. producers reported a range of effective conversion price to net sales ratios.[42] While magnitudes varied, the effective conversion price to net sales ratio of

[42] As defined previously, "effective conversion price" is the difference between sales value and raw material costs. It does not represent or refer to a transaction-specific conversion price. ***.

most U.S. producers declined during 2017-19 with most U.S. producers also reporting overall declines in their gross profit ratios.[43] [44] [45] [46]

Tracking the decline in total sales value in 2018 and increase in 2019, and in conjunction with a gross profit ratio contraction in 2018 and relative stabilization in 2019, total gross profit for merchant market operations declined to its lowest level in 2018 and then increased in 2019, remaining below the level reported in 2017. While the directional pattern of total gross profit for total market operations was the same as merchant market operations (declining in 2018 and increasing in 2019), total market gross profit ratio contracted only in 2018.[47]

[43] ***. Submission by ***, April 23, 2020.

[44] ***. Submission by ***, April 23, 2020.

[45] ***. Email from *** on behalf of ***, August 5, 2019.

[46] ***. Submission by ***, April 23, 2020.

[47] For both total market operations and merchant market operations, effective conversion price to net sales ratio declined in 2018 and 2019. For merchant market operations, conversion cost to net sales ratio increased in 2018 and declined in 2019. For total market operations, in contrast, conversion cost to net sales ratio declined in both 2018 and 2019.

SG&A expenses and operating income or loss

Total selling, general, and administrative (SG&A) expenses for merchant market and total market operations declined to their lowest levels in 2018 and then increased to their highest levels in 2019. While declining somewhat during 2017-19, corresponding SG&A expense ratios (total SG&A expenses divided by total sales) for both categories remained within a relatively narrow range throughout the period. As such, the level of SG&A expenses, in general, played a secondary role in terms of explaining the pattern of operating results.[48] [49]

Interest expense, other expenses and income, and net income or loss

***, *** U.S. producers reported some level of interest expense during the period examined with *** accounting for the largest company-specific share. *** accounted for the majority of other income reported during 2017-19.[50] Other expenses of varying magnitudes were reported sporadically by all U.S. producers.

[48] ***. Submission by ***, August 2, 2019.

[49] ***.

[50] ***. Email from *** on behalf of ***, May 28, 2020. ***. Email from *** on behalf of ***, August 5, 2019. ***. Submission by ***, April 23, 2020.

Merchant market operating income and net income followed the same pattern in 2018 (both declining) and then diverged in 2019 (operating income increasing and net income declining), reflecting the presence of interest expense and other expenses and a relative decline in other income. For total market operations, operating income and net income followed the same directional pattern throughout the period (declining in 2018 and increasing in 2019).

Capital expenditures and research and development expenses

Table VI-6 presents the U.S. producers' capital expenditures and research and development (R&D) expenses related to wind tower operations.

Table VI-6
Wind towers: Capital expenditures and research and development (R&D) expenses of U.S. producers, by firm, 2017-19

Item	Calendar year		
	2017	2018	2019
	Capital expenditures (1,000 dollars)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	41,751	26,707	17,323
	Research and development expenses (1,000 dollars)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	***	***	***

Table continued on next page.

Table VI-6—Continued
Wind towers: Capital expenditures and research and development (R&D) expenses of U.S. producers, by firm, 2017-19

Note 1.--***. *** U.S. producer questionnaire (preliminary phase), response to III-13 (note 1).
Note 2.--***. *** U.S. producer questionnaire, response to III-13 (note 1).
Note 3.--***. *** U.S. producer questionnaire, response to III-13 (note 1).
Note 4.--***. *** U.S. producer questionnaire, response to III-13 (note 1).
Note 5.--***. *** U.S. producer questionnaire, response to III-13 (note 1).
Note 6.--***. Email with attachment from ***, April 21, 2020.

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

For merchant market and total market operations, capital expenditures were at their highest levels in 2017, followed by progressively lower levels in 2018 and 2019. With the exception of *** and ***, which reported their highest capital expenditures in 2018 and 2019, respectively, U.S. producers reported their highest levels of capital expenditures in 2017. *** (*** percent of the period's total capital expenditures), *** (*** percent), and *** (*** percent) collectively accounted for the majority of the period's total capital expenditures. The remaining U.S. producers, ***, accounted for *** percent, *** percent, and *** percent, respectively, of the period's total capital expenditures.

R&D expenses were reported by ***, which reported that they represent ***.[51] At the Commission's staff conference, Arcosa and

[51] *** U.S. producer questionnaire, response to III-13 (note 2). ***. Petitioners' postconference brief, Exhibit 1, p. 60.

Broadwind company officials stated that R&D activity, in general, is focused on manufacturing process improvements.[52]

Assets and return on assets

Table VI-7 presents data on the U.S. producers' total net assets and operating return on net assets related to operations on wind towers.[53]

Table VI-7
Wind towers: U.S. producers' total net assets and operating return on net assets, by firm, 2017-19

Item	Calendar year		
	2017	2018	2019
	Total net assets (1,000 dollars)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	411,357	433,347	335,183
	Operating return on net assets (percent)		
Arcosa	***	***	***
Broadwind	***	***	***
GRI Towers	***	***	***
Marmen	***	***	***
Ventower	***	***	***
Total merchant market	***	***	***
Vestas	***	***	***
All firms	21.3	10.4	18.6

Note.--***.

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

[52] Conference transcript, p. 77 (Cole, Janda).

[53] With respect to a company's overall operations, staff notes that a total asset value (i.e., the bottom line value on the asset side of a company's balance sheet) reflects an aggregation of a number of current and non-current assets, which, in many instances, are not product specific. In most cases, allocation factors are necessary in order to report total asset values on a product-specific basis. The ability of U.S. producers to assign total asset values to discrete product lines affects the meaningfulness of operating return on net assets.

Capital and investment

The Commission requested the U.S. producers of wind towers to describe any actual or potential negative effects on their return on investment or its growth, investment, ability to raise capital, existing development and production efforts (including efforts to develop a derivative or more advanced version of the product), or the scale of capital investments as a result of imports of wind towers from Canada, Indonesia, Korea, and Vietnam. Table VI-8 tabulates the responses regarding actual negative effects on investment, growth, and development, as well as anticipated negative effects. Table VI-9 presents the narrative responses of the U.S. producers regarding actual and anticipated negative effects on investment, growth, and development.

Table VI-8
Wind towers: Negative effects of imports from subject sources on investment, growth, and development since January 1, 2017

Item	No	Yes
Negative effects on investment	2	4
Cancellation, postponement, or rejection of expansion projects		2
Denial or rejection of investment proposal		1
Reduction in the size of capital investments		2
Return on specific investments negatively impacted		4
Other		2
Negative effects on growth and development	2	4
Rejection of bank loans		0
Lowering of credit rating		2
Problem related to the issue of stocks or bonds		1
Ability to service debt		2
Other		2
Anticipated negative effects of imports	2	4

Note.--***.

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

Table VI-9
Wind towers: Narrative responses of U.S. producers regarding actual and anticipated negative effects of imports from subject sources on investment, growth, and development since January 1, 2017

Effects/Firm	Narrative
Negative impact on investment:	
Cancellation, postponement, or rejection of expansion projects	
***	***
***	***
Denial or rejection of investment proposal	
***	***
Reduction in the size of capital investments	
***	***
***	***
Return on specific investments negatively impacted	
***	***
***	***
***	***
***	***

Table continued on next page.

Table VI-9—Continued
Wind towers: Narrative responses of U.S. producers regarding actual and anticipated negative effects of imports from subject sources on investment, growth, and development since January 1, 2017

Effects/Firm	Narrative
Negative impact on investment--continued:	
Other	
***	***
***	***
Negative impact on growth and development:	
Lowering of credit rating	
***	***
***	***
Problem related to the issue of stocks or bonds	
***	***
Ability to service debt	
***	***
***	***
Other	
***	***
***	***

Table continued on next page.

Table VI-9—Continued
Wind towers: Narrative responses of U.S. producers regarding actual and anticipated negative effects of imports from subject sources on investment, growth, and development since January 1, 2017

Effects/Firm	Narrative
Anticipated effects of imports:	
***	***
***	***
***	***
***	***

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

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 factors*[1]*--*
>
> *(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 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

The Commission issued foreign producers' or exporters' questionnaires to four firms believed to produce and/or export wind towers from Canada.[3] Usable responses to the Commission's questionnaire were received from two firms, CS Wind Canada and Marmen Energie Co., Ltd ("Marmen Énergie"). Marmen Énergie's exports to the United States accounted for *** U.S. imports of wind towers from Canada in 2019. According to estimates requested of the responding Canada producers, the production of wind towers in Canada reported in questionnaires accounts for all known production of wind towers in Canada. Table VII-1 presents information on the wind towers operations of the responding producers and exporters in Canada.

Table VII-1
Wind towers: Summary data for producers in Canada, 2019

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)
CS Wind Canada Inc.	***	***	***	***	***	***
Marmen, Inc. & Marmen Énergie Inc.	***	***	***	***	***	***
Total	***	***	***	***	***	***

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

[3] These firms were identified through a review of information submitted in the petition and contained in *** records.

Changes in operations

As presented in table VII-2, producers in Canada reported several operational and organizational changes since January 1, 2017.

Table VII-2
Wind towers: Canada producers' reported changes in operations, since January 1, 2017

Item / Firm	Reported changed in operations
Plant closings:	
***	***
Expansions:	
***	***
Other:	
***	***

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

Operations on wind towers

Table VII-3 presents information on the wind towers operations of the responding producers and exporters in Canada. Following ***, Canadian producers' reported capacity decreased during 2017-19 by *** percent.[4] [5] Canadian producers' production decreased during 2017-19 by *** percent. At the beginning of the period in 2017, commercial home market shipments comprised nearly *** percent of Canadian producers' total shipments, but then decreased to *** by 2019. Export shipments to the United States increased during 2017-19 by *** percent, and as a share of total shipments rose from *** percent of total shipments in 2017 to *** percent of total shipments in 2019, an increase of *** percentage points. End-of-period inventories were at their highest in 2018 with *** towers reported, but they were then *** in 2019.

[4] ***.

[5] In addition to ***, Marmen Énergie ***. See also Marmen's posthearing brief at Attachment A-1, p. 22.

Table VII-3
Wind towers: Data for producers in Canada, 2017-19 and projection calendar years 2020 and 2021

Item	Actual experience			Projections	
	Calendar year			Calendar year	
	2017	2018	2019	2020	2021
	Quantity (units)				
Capacity	***	***	***	***	***
Production	***	***	***	***	***
End-of-period inventories	***	***	***	***	***
Shipments:					
Home market shipments:					
Internal consumption/ transfers	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***
Total home market shipments	***	***	***	***	***
Export shipments to:					
United States	***	***	***	***	***
All other markets	***	***	***	***	***
Total exports	***	***	***	***	***
Total shipments	***	***	***	***	***
	Ratios and shares (percent)				
Capacity utilization	***	***	***	***	***
Inventories/production	***	***	***	***	***
Inventories/total shipments	***	***	***	***	***
Share of shipments:					
Home market shipments:					
Internal consumption/ transfers	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***
Total home market shipments	***	***	***	***	***
Export shipments to:					
United States	***	***	***	***	***
All other markets	***	***	***	***	***
Total exports	***	***	***	***	***
Total shipments	***	***	***	***	***

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

Alternative products and production by weight

The Commission requested that Canadian producers provide data regarding production of wind towers and other products produced on the same machinery by weight (in short tons) and on a per-tower basis, shown below in table VII-4. *** were produced on the same machinery as wind towers during 2017-19. While overall capacity and production decreased by both measures, Canadian producers reported producing *** in 2018 than in 2019. *** stated in its questionnaire response that the firm had ***.

Table VII-4
Wind towers: Data for producers in Canada, 2017-19 and projection calendar years 2020 and 2021

Item	Calendar year		
	2017	2018	2019
	Quantity (units)		
Overall capacity	***	***	***
Production:			
Wind towers	***	***	***
Out-of-scope production	***	***	***
Total production on same machinery	***	***	***
	Ratios and shares based on towers/other products (percent)		
Overall capacity utilization	***	***	***
Share of production:			
Wind towers	***	***	***
Out-of-scope production	***	***	***
Total production on same machinery	***	***	***
	Quantity (short tons)		
Overall capacity	***	***	***
Production:			
Wind towers	***	***	***
Out-of-scope production	***	***	***
Total production on same machinery	***	***	***
	Ratios and shares based on short tons (percent)		
Overall capacity utilization	***	***	***
Share of production:			
Wind towers	***	***	***
Out-of-scope production	***	***	***
Total production on same machinery	***	***	***
	Ratio (short tons per unit)		
Share of production:			
Wind towers	***	***	***
Out-of-scope production	***	***	***
Total production on same machinery	***	***	***

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

Exports

According to GTA, the leading export markets for towers and lattice masts of iron or steel (including wind towers) from Canada are the United States and Saudi Arabia (table VII-5). During 2019, the United States was the top export market for wind towers from Canada, accounting for 99.1 percent of total exports by value, followed by Saudi Arabia, accounting for 0.4 percent of total exports by value.

Table VII-5
Towers and lattice masts of iron or steel: Exports from Canada by destination market, 2017-19

Destination market	Calendar year		
	2017	2018	2019
	Value (1,000 dollars)		
United States	61,855	104,039	101,981
Saudi Arabia	490	737	461
Iraq	---	---	131
Antigua & Barbuda	---	69	79
Lebanon	---	426	56
Bulgaria	19	---	46
Guyana	---	---	29
Trinidad & Tobago	---	37	24
Cuba	---	5	17
All other destination markets	1,098	2,440	37
Total exports	63,462	107,753	102,861
	Share of value (percent)		
United States	97.5	96.6	99.1
Saudi Arabia	0.8	0.7	0.4
Iraq	---	---	0.1
Antigua & Barbuda	---	0.1	0.1
Lebanon	---	0.4	0.1
Bulgaria	0.0	---	0.0
Guyana	---	---	0.0
Trinidad & Tobago	---	0.0	0.0
Cuba	---	0.0	0.0
All other destination markets	1.7	2.3	0.0
Total exports	100.0	100.0	100.0

Note.--Shares and ratios shown as “0.0” represent values greater than zero, but less than “0.05” percent. Data reported under subheadings includes some merchandise outside of Commerce’s scope. Export quantities not provided due to differences in units of measure amongst reporting countries. United States is shown at the top, all remaining top export destinations shown in descending order of 2019 data.

Source: Official exports statistics under HS subheading 7308.20 as reported by Statistics Canada in the Global Trade Atlas database, accessed July 6, 2020.

The industry in Indonesia

The Commission issued foreign producers' or exporters' questionnaires to one firm, PT Kenertec Power Systems ("Kenertec"), believed to produce and/or export wind towers from Indonesia.[6] [7] Kenertec provided a usable response to the Commission's questionnaire. The firm reported that it accounts for *** production of wind towers in Indonesia and exports of wind towers from Indonesia to the United States. Table VII-6 shows Kenertec's summary data for 2019.

Table VII-6
Wind towers: Summary data for Indonesian producer PT Kenertec Power Systems, 2019

Firm	Production (towers)	Share of reported production (percent)	Exports to the United States (towers)	Share of reported exports to the United States (percent)	Total shipments (towers)	Share of firm's total shipments exported to the United States (percent)
PT Kenertec Power Systems	***	***	***	***	***	***
Total	***	***	***	***	***	***

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

[6] This firm was identified through a review of information submitted in the petition and contained in *** records.

[7] Kenertec clarified in follow-up correspondence that ***.

Changes in operations

Table VII-7 presents Kenertec's operational and organizational changes since January 1, 2017.

Table VII-7
Wind towers: Indonesian producer Kenertec's reported changes in operations, since January 1, 2017

Item / Firm	Reported changed in operations
Prolonged shutdowns or curtailments:	
***	***

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

Operations on wind towers

Table VII-8 presents information on Kenertec's wind towers operations. While Kenertec's capacity *** during 2017-19, Kenertec's production of wind towers and its capacity utilization ***. During 2017-19 Kenertec reported *** of end-of-period inventories, which were at their lowest in 2018. Kenertec reported a *** home market shipments in 2017, and *** home market shipments in 2018 and 2019. The firm reported that it *** exported its wind tower shipments, exporting between *** percent to the United States and between *** percent to other markets during 2017-19.

Table VII-8
Wind towers: Data for Indonesian producer Kenertec, 2017-19 and projection calendar years 2020 and 2021

Item	Actual experience			Projections	
	Calendar year			Calendar year	
	2017	2018	2019	2020	2021
	Quantity (towers)				
Capacity	***	***	***	***	***
Production	***	***	***	***	***
End-of-period inventories	***	***	***	***	***
Shipments:					
Home market shipments:					
Internal consumption/ transfers	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***
Total home market shipments	***	***	***	***	***
Export shipments to:					
United States	***	***	***	***	***
All other markets	***	***	***	***	***
Total exports	***	***	***	***	***
Total shipments	***	***	***	***	***
	Ratios and shares (percent)				
Capacity utilization	***	***	***	***	***
Inventories/production	***	***	***	***	***
Inventories/total shipments	***	***	***	***	***
Share of shipments:					
Home market shipments:					
Internal consumption/ transfers	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***
Total home market shipments	***	***	***	***	***
Export shipments to:					
United States	***	***	***	***	***
All other markets	***	***	***	***	***
Total exports	***	***	***	***	***
Total shipments	***	***	***	***	***

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

Alternative products and production by weight

Table VII-9 presents Kenertec's overall capacity and production on the same equipment and machinery used to produce wind towers, by weight and towers. *** were produced on the same machinery as wind towers during 2017-19. In addition to the *** in the number of towers Kenertec produced, the towers that the firm produced also *** on a weight basis during 2017-19, though processed *** in 2018.

Table VII-9
Wind towers: Indonesian producer Kenertec's overall capacity and production on the same equipment as subject production, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (units)		
Overall capacity	***	***	***
Production:			
Wind towers	***	***	***
Out-of-scope production	***	***	***
Total production on same machinery	***	***	***
	Ratios and shares based on towers (percent)		
Overall capacity utilization	***	***	***
Share of production:			
Wind towers	***	***	***
Out-of-scope production	***	***	***
Total production on same machinery	***	***	***
	Quantity (short tons)		
Overall capacity	***	***	***
Production:			
Wind towers	***	***	***
Out-of-scope production	***	***	***
Total production on same machinery	***	***	***
	Ratios and shares based on short tons (percent)		
Overall capacity utilization	***	***	***
Share of production:			
Wind towers	***	***	***
Out-of-scope production	***	***	***
Total production on same machinery	***	***	***
	Ratio (short tons per unit)		
Share of production:			
Wind towers	***	***	***
Out-of-scope production	***	***	***
Total production on same machinery	***	***	***

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

Exports

According to GTA, the leading export markets for towers and lattice masts of iron or steel (including wind towers) from Indonesia are the United States and Norway (table VII-10). During 2019, the United States was the top export market for wind towers from Indonesia, accounting for 78.1 percent of the value of total exports, followed by Norway, accounting for 20.7 percent of the value of total exports.

Table VII-10
Towers and lattice masts of iron or steel: Exports from Indonesia by destination market, 2017-19

Destination market	Calendar year		
	2017	2018	2019
	Value (1,000 dollars)		
United States	42,495	64,246	90,380
Norway	---	---	24,010
India	---	---	365
New Caledonia	---	---	360
South Africa	---	---	289
East Timor	627	300	118
Singapore	112	227	75
Australia	4,658	13,589	59
Malaysia	145	139	31
All other destination markets	1,712	3,411	52
Total exports	49,748	81,912	115,739
	Share of value (percent)		
United States	85.4	78.4	78.1
Norway	---	---	20.7
India	---	---	0.3
New Caledonia	---	---	0.3
South Africa	---	---	0.2
East Timor	1.3	0.4	0.1
Singapore	0.2	0.3	0.1
Australia	9.4	16.6	0.1
Malaysia	0.3	0.2	0.0
All other destination markets	3.4	4.2	0.0
Total exports	100.0	100.0	100.0

Note.--Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. United States is shown at the top, all remaining top export destinations shown in descending order of 2019 data.

Source: Official exports statistics under HS subheading 7308.20 as reported by Statistics Indonesia in the Global Trade Atlas database, accessed July 6, 2020.

The industry in Korea

The Commission issued foreign producers' or exporters' questionnaires to two firms believed to produce and/or export wind towers from Korea.[8] Usable responses to the Commission's questionnaire were received from two firms: Dongkuk S&C Co., Ltd. ("Dongkuk") and Win&P Co., Ltd. ("Win&P"). These firms' exports to the United States accounted for *** U.S. imports of wind towers from Korea in 2019. According to estimates requested of the responding Korea producers, the production of wind towers in Korea reported in questionnaires accounts for *** percent of production of wind towers in Korea. Table VII-11 presents information on the wind towers operations of the responding producers and exporters in Korea.

Table VII-11
Wind towers: Summary data for producers in Korea, 2019

Firm	Production (towers)	Share of reported production (percent)	Exports to the United States (towers)	Share of reported exports to the United States (percent)	Total shipments (towers)	Share of firm's total shipments exported to the United States (percent)
Win&P	***	***	***	***	***	***
Dongkuk S&C Co., Ltd.	***	***	***	***	***	***
Total	***	***	***	***	***	***

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

[8] These firms were identified through a review of information submitted in the petition and contained in *** records.

Changes in operations

Winn&P and Dongkuk reported no operational or organizational changes during 2017-19.

Operations on wind towers

Table VII-12 presents information on the wind towers operations of the responding producers and exporters in Korea. While Korean producers' capacity remained unchanged during 2017-19, Korean producers' reported production increased by *** percent. Korean producers' end-of-period inventories increased during 2017-19 by *** percent, *** between 2017 and 2018. Home market shipments made up a small share, between *** percent and *** percent, of total shipments during 2017-19. Korean producers' home market shipments decreased during 2017-19 by *** percent, and were *** in 2018. Export shipments made up the majority of Korean producers' total shipments, with exports to the United States alone making up between *** percent and *** percent of Korean producers' total shipments during 2017-19. The quantity of Korean producers' export shipments to the United States *** during 2017-19 by *** percent and by *** percentage points.

Table VII-12
Wind towers: Data for producers in Korea, 2017-19 and projection calendar years 2020 and 2021

Item	Actual experience			Projections	
	Calendar year			Calendar year	
	2017	2018	2019	2020	2021
	Quantity (towers)				
Capacity	***	***	***	***	***
Production	***	***	***	***	***
End-of-period inventories	***	***	***	***	***
Shipments:					
Home market shipments:					
Internal consumption/ transfers	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***
Total home market shipments	***	***	***	***	***
Export shipments to:					
United States	***	***	***	***	***
All other markets	***	***	***	***	***
Total exports	***	***	***	***	***
Total shipments	***	***	***	***	***
	Ratios and shares (percent)				
Capacity utilization	***	***	***	***	***
Inventories/production	***	***	***	***	***
Inventories/total shipments	***	***	***	***	***
Share of shipments:					
Home market shipments:					
Internal consumption/ transfers	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***
Total home market shipments	***	***	***	***	***
Export shipments to:					
United States	***	***	***	***	***
All other markets	***	***	***	***	***
Total exports	***	***	***	***	***
Total shipments	***	***	***	***	***

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

Alternative products and production by weight

The Commission requested that Korean producers provide data regarding production of wind towers and other products produced on the same machinery by weight (in short tons) and on a per-tower basis, shown below in table VII-13. Korean producer *** reported that the firm produced *** on the same machinery as wind towers, but noted that ***. The ratio of Korean producers' production of wind towers by weight *** relative to production of actual towers during 2017-19.

Table VII-13
Wind towers: Korean producers' overall capacity and production on the same equipment as subject production, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (units)		
Overall capacity	***	***	***
Production:			
Wind towers	***	***	***
Out-of-scope production	***	***	***
Total production on same machinery	***	***	***
	Ratios and shares based on towers (percent)		
Overall capacity utilization	***	***	***
Share of production:			
Wind towers	***	***	***
Out-of-scope production	***	***	***
Total production on same machinery	***	***	***
	Quantity (short tons)		
Overall capacity	***	***	***
Production:			
Wind towers	***	***	***
Out-of-scope production	***	***	***
Total production on same machinery	***	***	***
	Ratios and shares based on short tons (percent)		
Overall capacity utilization	***	***	***
Share of production:			
Wind towers	***	***	***
Out-of-scope production	***	***	***
Total production on same machinery	***	***	***
	Ratio (short tons per unit)		
Share of production:			
Wind towers	***	***	***
Out-of-scope production	***	***	***
Total production on same machinery	***	***	***

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

Exports

According to GTA, the leading export markets for towers and lattice masts of iron or steel (including wind towers) from Korea are the United States, India, and Vietnam (table VII-14). During 2019, the United States was the top export market for wind towers from Korea, accounting for 83.0 percent, followed by India, accounting for 3.5 percent.

Table VII-14
Towers and lattice masts of iron or steel: Exports from Korea, 2017-19

Destination market	Calendar year		
	2017	2018	2019
	Value (1,000 dollars)		
United States	330	595	42,991
India	---	177	1,818
Vietnam	633	43	1,611
Japan	1	---	1,574
Brunei Darussalam	---	---	1,252
Myanmar	281	668	1,083
United Arab Emirates	---	---	862
Mongolia	---	204	163
China	119	213	136
All other destination markets	8,255	3,773	325
Total exports	9,619	5,673	51,815
	Share of value (percent)		
United States	3.4	10.5	83.0
India	---	3.1	3.5
Vietnam	6.6	0.8	3.1
Japan	0.0	---	3.0
Brunei Darussalam	---	---	2.4
Myanmar	2.9	11.8	2.1
United Arab Emirates	---	---	1.7
Mongolia	---	3.6	0.3
China	1.2	3.8	0.3
All other destination markets	85.8	66.5	0.6
Total exports	100.0	100.0	100.0

Note.--Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. United States is shown at the top, all remaining top export destinations shown in descending order of 2019 data.

Source: Official exports statistics under HS subheading 730820 as reported by as reported by Korea Customs and Trade Development Institution in the Global Trade Atlas database, accessed July 6, 2020.

The industry in Vietnam

The Commission issued foreign producers' or exporters' questionnaires to three firms believed to produce and/or export wind towers from Vietnam.[9] One usable response to the Commission's questionnaire were received from CS Wind Vietnam. This firms' exports to the United States accounted for *** U.S. imports of wind towers from Vietnam in 2019. CS Wind's production of wind towers in Vietnam reported in its questionnaire accounts for *** production of wind towers in Vietnam. Table VII-15 presents information on the wind towers operations of the responding producers and exporters in Vietnam.

Table VII-15
Wind towers: Summary data for producers in Vietnam, 2019

Firm	Production (towers)	Share of reported production (percent)	Exports to the United States (towers)	Share of reported exports to the United States (percent)	Total shipments (towers)	Share of firm's total shipments exported to the United States (percent)
CS Wind Vietnam Co., Ltd.	***	***	***	***	***	***
Total	***	***	***	***	***	***

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

[9] These firms were identified through a review of information submitted in the petition and contained in *** records. Based on best available information, the two remaining firms, *** and *** ceased production/exporting of wind towers to the United States prior to 2017.

Changes in operations

Table VII-16 shows CS Wind Vietnam reported operational or organizational changes since January 1, 2017.

Table VII-16
Wind towers: Reported changes in operations by Vietnamese producer CS Wind since January 1, 2017

Item / Firm	Reported changed in operations
Expansions:	
***	***

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

Operations on wind towers

Table VII-17 presents information on CS Wind's wind towers operations. CS Wind's capacity increased by *** during 2017-19, and projected that its capacity will ***. As also visible in the firm's capacity utilization, which increased by *** percentage points during 2017-19, CS Wind's production *** during 2017-19. The firm reported *** during 2017-19. CS Wind *** during each year of 2017-19.[10] While the firm reported ***, CS Wind ***.

[10] CS Wind reported in its questionnaire that its ***.

Table VII-17
Wind towers: Data for Vietnamese producer CS Wind, 2017-19 and projection calendar years 2020 and 2021

Item	Actual experience			Projections	
	Calendar year			Calendar year	
	2017	2018	2019	2018	2019
	Quantity (towers)				
Capacity	***	***	***	***	***
Production	***	***	***	***	***
End-of-period inventories	***	***	***	***	***
Shipments:					
Home market shipments:					
Internal consumption/ transfers	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***
Total home market shipments	***	***	***	***	***
Export shipments to:					
United States	***	***	***	***	***
All other markets	***	***	***	***	***
Total exports	***	***	***	***	***
Total shipments	***	***	***	***	***
	Ratios and shares (percent)				
Capacity utilization	***	***	***	***	***
Inventories/production	***	***	***	***	***
Inventories/total shipments	***	***	***	***	***
Share of shipments:					
Home market shipments:					
Internal consumption/ transfers	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***
Total home market shipments	***	***	***	***	***
Export shipments to:					
United States	***	***	***	***	***
All other markets	***	***	***	***	***
Total exports	***	***	***	***	***
Total shipments	***	***	***	***	***

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

Alternative products and production by weight

Table VII-18 presents CS Wind's overall capacity and production on the same equipment and machinery used to produce wind towers, by weight and towers. CS Wind reported *** on the same machinery as wind towers during 2017-19. In addition to the *** in the number of towers CS Wind produced, the towers that the firm produced also *** on a weight basis during 2017-19, though processed *** in 2018.

Table VII-18
Wind towers: Overall capacity and production on the same equipment as in-scope production by Vietnamese producer CS Wind, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (units)		
Overall capacity	***	***	***
Production:			
Wind towers	***	***	***
Out-of-scope production	***	***	***
Total production on same machinery	***	***	***
	Ratios and shares based on towers (percent)		
Overall capacity utilization	***	***	***
Share of production:			
Wind towers	***	***	***
Out-of-scope production	***	***	***
Total production on same machinery	***	***	***
	Quantity (short tons)		
Overall capacity	***	***	***
Production:			
Wind towers	***	***	***
Out-of-scope production	***	***	***
Total production on same machinery	***	***	***
	Ratios and shares based on short tons (percent)		
Overall capacity utilization	***	***	***
Share of production:			
Wind towers	***	***	***
Out-of-scope production	***	***	***
Total production on same machinery	***	***	***
	Ratio (short tons per unit)		
Share of production:			
Wind towers	***	***	***
Out-of-scope production	***	***	***
Total production on same machinery	***	***	***

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

Exports

According to GTA, the leading export markets for towers and lattice masts of iron or steel (including wind towers) from Vietnam are the United States, the United Kingdom, and Australia (table VII-19). During 2019, the United States was the top export market for wind towers from Vietnam, accounting for 28.8 percent, followed by the United Kingdom and Australia.

Table VII-19
Towers and lattice masts of iron or steel: World imports from Vietnam, 2017-19

Destination market	Calendar year		
	2017	2018	2019
	Value (1,000 dollars)		
United States	---	21,446	106,112
United Kingdom	---	35,629	102,716
Australia	35,120	42,394	100,057
Ireland	7,111	---	30,085
Sweden	---	8,935	20,783
Canada	---	---	4,474
Pakistan	---	---	2,339
Taiwan	---	---	1,105
Peru	651	237	1,087
All other destination markets	20,225	47,828	5,212
Total exports	63,107	156,468	373,969
	Share of value (percent)		
United States	---	13.7	28.8
United Kingdom	---	22.6	27.4
Australia	55.7	27.2	27.1
Ireland	11.3	---	8.2
Sweden	---	5.7	5.6
Canada	---	---	1.2
Pakistan	---	---	0.6
Taiwan	---	---	0.3
Peru	1.0	0.2	0.3
All other destination markets	32.0	30.6	1.4
Total exports	100.0	100.0	100.0

Note.--Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. United States is shown at the top, all remaining top export destinations shown in descending order of 2019 data.

Source: Official import statistics to Vietnam under HS subheading 7308.20 as reported by various national statistical authorities in the Global Trade Atlas database, accessed July 6, 2020.

Subject countries combined

Table VII-20 presents summary data on wind towers operations of the reporting subject producers in the subject countries. Subject producers' capacity increased during 2017-19 by 2.6 percent. Subject producers' production increased during 2017-19 by 76.2 percent, with much of this increase occurring between 2018 and 2019. Subject producers' reported end of period inventories *** during 2017-19, and ***. Home market shipments made up a small share of total shipments during 2017-19, and decreased during 2017-19 by *** percent. Export shipments made up between *** and *** percent of subject producers' total shipments during 2017-19. Subject producers' export shipments as a whole increased during 2017-19 by *** percent and by *** percentage points as a share of quantity, and export shipments to the United States alone made up *** of total shipments during 2017-19.

Table VII-20
Wind towers: Data on the industry in subject countries, 2017-19, and projection calendar years 2020 and 2021

Item	Actual experience			Projections	
	Calendar year			Calendar year	
	2017	2018	2019	2020	2021
	Quantity (towers)				
Capacity	2,662	2,694	2,731	2,662	2,606
Production	1,385	1,637	2,441	2,109	1,993
End-of-period inventories	***	***	***	***	***
Shipments:					
Home market shipments:					
Internal consumption/ transfers	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***
Total home market shipments	***	***	***	***	***
Export shipments to:					
United States	***	***	***	***	***
All other markets	***	***	***	***	***
Total exports	***	***	***	***	***
Total shipments	***	***	***	***	***
	Ratios and shares (percent)				
Capacity utilization	52.0	60.8	89.4	79.2	76.5
Inventories/production	***	***	***	***	***
Inventories/total shipments	***	***	***	***	***
Share of shipments:					
Home market shipments:					
Internal consumption/ transfers	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***
Total home market shipments	***	***	***	***	***
Export shipments to:					
United States	***	***	***	***	***
All other markets	***	***	***	***	***
Total exports	***	***	***	***	***
Total shipments	***	***	***	***	***

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

U.S. inventories of imported merchandise

Table VII-21 presents data on U.S. importers' reported inventories of wind towers. Inventories of imports from subject sources, namely ***, *** during 2017-19, and *** in 2018. U.S. importer *** reported inventories of *** towers *** that were held in laydown yards *** during 2019. ***.

Table VII-21
Wind towers: U.S. importers' inventories, 2017-19

Item	Calendar year		
	2017	2018	2019
	Inventories (towers); Ratios (percent)		
Imports from Canada			
Inventories	***	***	***
Ratio to U.S. imports	***	***	***
Ratio to U.S. shipments of imports	***	***	***
Ratio to total shipments of imports	***	***	***
Imports from Indonesia			
Inventories	***	***	***
Ratio to U.S. imports	***	***	***
Ratio to U.S. shipments of imports	***	***	***
Ratio to total shipments of imports	***	***	***
Imports from Korea			
Inventories	***	***	***
Ratio to U.S. imports	***	***	***
Ratio to U.S. shipments of imports	***	***	***
Ratio to total shipments of imports	***	***	***
Imports from Vietnam			
Inventories	***	***	***
Ratio to U.S. imports	***	***	***
Ratio to U.S. shipments of imports	***	***	***
Ratio to total shipments of imports	***	***	***
Imports from subject sources			
Inventories	***	***	***
Ratio to U.S. imports	***	***	***
Ratio to U.S. shipments of imports	***	***	***
Ratio to total shipments of imports	***	***	***
Imports from nonsubject sources:			
Inventories	***	***	***
Ratio to U.S. imports	***	***	***
Ratio to U.S. shipments of imports	***	***	***
Ratio to total shipments of imports	***	***	***
Imports from all import sources:			
Inventories	***	***	***
Ratio to U.S. imports	***	***	***
Ratio to U.S. shipments of imports	***	***	***
Ratio to total shipments of imports	***	***	***

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

U.S. importers' outstanding orders

The Commission requested importers to indicate whether they imported or arranged for the importation of wind towers from Canada, Indonesia, Korea, and/or Vietnam after December 31, 2019. Responding importers' data are presented below in table VII-22.

Table VII-22
Wind towers: U.S. importers' arranged imports, 2020

Item	Period				
	Jan-Mar 2020	Apr-Jun 2020	Jul-Sept 2020	Oct-Dec 2020	Total
	Quantity (towers)				
Arranged U.S. imports from.--Canada	***	***	***	***	***
Indonesia	***	***	***	***	***
Korea	***	***	***	***	***
Vietnam	***	***	***	***	***
Subject sources	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
All import sources	***	***	***	***	***

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

Antidumping or countervailing duty orders in third-country markets

From April 2014 to April 2019, Australia had an antidumping duty order in place on imports of wind towers from Korea. The order on Korea was terminated as a result of the most recent five-year review.[11] In the final phase of these investigations, neither the Petitioners nor Respondents expressed knowledge of any other antidumping or countervailing duty orders in third-country markets on wind towers originating in Canada, Indonesia, Korea, or Vietnam.[12]

Global exports

Table VII-23 presents data on global exports of towers and lattice masts of iron or steel (including wind towers) during 2017-19. China (12.7 percent), Vietnam (11.1), Spain (10.3 percent), and India (10.3 percent) were the largest exporters (in terms of value) of towers and lattice masts of iron or steel in 2019, and together accounted for 44.4 percent of global exports of these products that year.

[11] The Australian Anti-Dumping Commission ("AADC") determined that imports of wind towers originating in Korea were unlikely to cause continued or recurring injury, finding that (1) Win&P Ltd., the largest Korean exporter of wind towers to the Australian market, exhibits a "bias towards" its domestic and U.S. markets, attributable to "strong price competition in the Australian market;" and (2) Korean exporters are not price competitive with other suppliers to the Australian market, regardless of the antidumping order. The AADC recommended dumping margins of 6.4 percent ad valorem on Shanghai Taisheng Wind Power Equipment Co. Ltd., and its five subsidiaries; and dumping margins of 10.9 percent on other Chinese wind-tower exporters. Petitioners' postconference brief, exh. 1: Answers to Staff Questions, pp. 36-38; Petition, exh. I-27: AADC, Report No. 487, *Inquiry Into the Continuation of Anti-Dumping Measures Applying to Wind Towers Exported to Australia from the People's Republic of China and the Republic of Korea*, March 12, 2019, pp. 7-8, 44, 49, 52-53.

[12] Counsel to Petitioner elaborated that due to domestic-content requirements in many countries (e.g., Brazil, Canada, and China), there are very few third-country markets available to wind towers. Staff conference transcript, pp. 83-84 (Price); Petitioners' postconference brief, exh. 1: Answers to Staff Questions, pp. 36-38; Petitioners' posthearing brief, exh. 1: Answers to Commissioner Questions, p. 74. The respondents did not specifically address this issue in their posthearing briefs.

Table VII-23
Towers and lattice masts of iron or steel: Global exports by supplying countries, 2017-19

Exporter	Calendar year		
	2017	2018	2019
	Value (1,000 dollars)		
United States	38,978	30,908	47,441
Canada	63,462	107,753	102,861
Indonesia	49,748	81,912	115,739
Korea	9,619	5,673	51,815
Vietnam	63,107	156,468	373,969
Subject sources	185,937	351,806	644,384
China	537,430	492,077	425,525
Spain	159,150	317,082	346,750
India	321,510	256,844	344,878
Denmark	484,550	506,869	266,078
Germany	158,224	194,414	252,699
Turkey	183,592	240,798	250,652
Netherlands	33,662	47,570	110,467
Belgium	1,381	3,399	80,652
Italy	65,969	71,324	73,121
Portugal	102,838	94,914	72,002
All other exporters	486,909	541,300	133,055
Nonsubject countries	2,535,215	2,766,591	2,355,877
Total	2,742,217	3,283,905	3,355,845
	Share of value (percent)		
United States	1.4	0.9	1.4
Canada	2.3	3.3	3.1
Indonesia	1.8	2.5	3.4
Korea	0.4	0.2	1.5
Vietnam	2.3	4.8	11.1
Subject sources	6.8	10.7	19.2
China	19.6	15.0	12.7
Spain	5.8	9.7	10.3
India	11.7	7.8	10.3
Denmark	17.7	15.4	7.9
Germany	5.8	5.9	7.5
Turkey	6.7	7.3	7.5
Netherlands	1.2	1.4	3.3
Belgium	0.1	0.1	2.4
Italy	2.4	2.2	2.2
Portugal	3.8	2.9	2.1
All other exporters	17.8	16.5	4.0
Nonsubject countries	92.5	84.2	70.2
Total	100.0	100.0	100.0

Note.--Data reported under HS subheading 7308.20 include some merchandise outside of the scope of this investigation.

Source: Official export statistics under HS 7308.20, reported by national customs authorities, in the Global Trade Atlas database, accessed July 6, 2020.

Information on nonsubject countries

Information about global exports by nonsubject countries is not readily available, in part because wind towers enter the U.S. market under HTS statistical reporting numbers that include numerous other fabricated products of iron or steel, of which the portion that is the in-scope product is not known.

Three firms reported importing wind towers from nonsubject sources during 2017-19. *** reported importing from ***[13] in China.[14] [15] *** reported importing from ***[16] in Denmark, ***[17] in Mexico, and ***[18] in Spain.[19] *** reported importing from ***,[20] ***,[21] and ***[22] in India, ***[23] in Italy, ***[24] in Malaysia, and ***[25] in Spain.[26]

Exports from China

According to GTA, the leading export markets for towers and lattice masts of iron or steel (including wind towers) from China are Pakistan and the Philippines (table VII-24). During 2019, the United States was the 13th-largest export market for these products from China, accounting for 1.9 percent of the total value in that year.

[13] ***.

[14] ***, importer questionnaire response.

[15] Wind towers originating in China were the subject of prior related antidumping and countervailing duty investigations in 2012-13. See: the "Previous and Related Investigations" section of Part I.

[16] ***.

[17] ***.

[18] ***.

[19] ***, importer questionnaire response.

[20] ***.

[21] ***.

[22] ***.

[23] ***.

[24] ***.

[25] ***.

[26] ***, importer questionnaire response.

Table VII-24
Towers and lattice masts of iron or steel: Exports from China by destination market, 2017-19

Destination market	Calendar year		
	2017	2018	2019
	Value (1,000 dollars)		
United States	1,441	1,075	7,981
Pakistan	71,946	21,082	80,370
Philippines	41,761	19,561	52,842
Japan	23,041	30,516	27,062
Cambodia	5,792	5,023	18,941
Laos	25,416	23,434	17,496
Bolivia	2,601	8,295	16,565
Australia	5,244	9,289	16,099
Malaysia	6,545	4,432	13,725
All other destination markets	353,643	369,371	174,443
Total exports	537,430	492,077	425,525
	Share of value (percent)		
United States	0.3	0.2	1.9
Pakistan	13.4	4.3	18.9
Philippines	7.8	4.0	12.4
Japan	4.3	6.2	6.4
Cambodia	1.1	1.0	4.5
Laos	4.7	4.8	4.1
Bolivia	0.5	1.7	3.9
Australia	1.0	1.9	3.8
Malaysia	1.2	0.9	3.2
All other destination markets	65.8	75.1	41.0
Total exports	100.0	100.0	100.0

Note.--Data reported under HS subheading 7308.20 include some merchandise outside of the scope of this investigation.

Source: Official export statistics from China under HS subheading 7308.20 as reported by China Customs in the Global Trade Atlas database, accessed July 6, 2020.

Exports from Denmark

According to GTA, the leading export markets for towers and lattice masts of iron or steel (including wind towers) from Denmark are the United Kingdom and the Netherlands (table VII-25). During 2019, the United States was the 26th-largest export market for these products from Denmark, accounting for less than 0.05 percent of the total value in that year.

Table VII-25
Towers and lattice masts of iron or steel: Exports from Denmark by destination market, 2017-19

Destination market	Calendar year		
	2017	2018	2019
	Value (1,000 dollars)		
United States	424	4	10
United Kingdom	241,820	346,325	166,057
Netherlands	3	26,613	67,065
Belgium	1,631	54,547	7,866
Norway	1,719	13,612	6,964
Germany	203,214	59,544	5,597
Ireland	3,067	2,035	4,190
Spain	250	310	3,031
Portugal	---	2	2,428
All other destination markets	32,422	3,877	2,872
Total exports	484,550	506,869	266,078
	Share of value (percent)		
United States	0.1	0.0	0.0
United Kingdom	49.9	68.3	62.4
Netherlands	0.0	5.3	25.2
Belgium	0.3	10.8	3.0
Norway	0.4	2.7	2.6
Germany	41.9	11.7	2.1
Ireland	0.6	0.4	1.6
Spain	0.1	0.1	1.1
Portugal	---	0.0	0.9
All other destination markets	6.7	0.8	1.1
Total exports	100.0	100.0	100.0

Note.--Data reported under HS subheading 7308.20 include some merchandise outside of the scope of this investigation.

Note.--Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. United States is shown at the top, all remaining top export destinations shown in descending order of 2018 data.

Source: Official export statistics from Denmark under HS subheading 7308.20 as reported by Eurostat in the Global Trade Atlas database, accessed July 6, 2020.

Exports from India

According to GTA, the leading export markets for towers and lattice masts of iron or steel (including wind towers) from India are Bangladesh and Afghanistan (table VII-26). During 2019, the United States was the 26th-largest export market for these products from India, accounting for 0.8 percent of the total value in that year.

Table VII-26
Towers and lattice masts of iron or steel: Exports from India by destination market, 2017-19

Destination market	Calendar year		
	2017	2018	2019
	Value (1,000 dollars)		
United States	1,567	641	2,887
Bangladesh	11,408	18,074	58,647
Afghanistan	31,854	30,246	40,267
Peru	1,007	13	27,157
Nepal	4,614	19,939	25,380
Nigeria	1,501	4,499	18,881
Pakistan	---	2,201	16,935
United Arab Emirates	4,789	18,117	14,104
Colombia	62,275	13,650	13,207
All other destination markets	202,495	149,463	127,413
Total exports	321,510	256,844	344,878
	Share of value (percent)		
United States	0.5	0.2	0.8
Bangladesh	3.5	7.0	17.0
Afghanistan	9.9	11.8	11.7
Peru	0.3	0.0	7.9
Nepal	1.4	7.8	7.4
Nigeria	0.5	1.8	5.5
Pakistan	---	0.9	4.9
United Arab Emirates	1.5	7.1	4.1
Colombia	19.4	5.3	3.8
All other destination markets	63.0	58.2	36.9
Total exports	100.0	100.0	100.0

Note.--Data reported under HS subheading 7308.20 include some merchandise outside of the scope of this investigation.

Source: Official export statistics from India under HS subheading 7308.20 as reported by the India Ministry of Commerce in the Global Trade Atlas database, accessed July 6, 2020.

Exports from Italy

According to GTA, the leading export markets for towers and lattice masts of iron or steel (including wind towers) from Italy are Germany, Russia, and Switzerland (table VII-27). During 2019, the United States was the fifth-largest export market for these products from Italy, accounting for 8.0 percent of the total value in that year.

Table VII-27
Towers and lattice masts of iron or steel: Exports from Italy by destination market, 2017-19

Destination market	Calendar year		
	2017	2018	2019
	Value (1,000 dollars)		
United States	1,009	921	5,817
Germany	19,390	25,750	23,092
Russia	617	2,995	10,095
Switzerland	4,947	5,270	7,993
France	19,673	8,043	6,038
Austria	3,091	7,241	4,186
Romania	608	952	2,182
Qatar	175	71	1,126
Slovenia	857	1,101	1,120
All other destination markets	15,602	18,981	11,472
Total exports	65,969	71,324	73,121
	Share of value (percent)		
United States	1.5	1.3	8.0
Germany	29.4	36.1	31.6
Russia	0.9	4.2	13.8
Switzerland	7.5	7.4	10.9
France	29.8	11.3	8.3
Austria	4.7	10.2	5.7
Romania	0.9	1.3	3.0
Qatar	0.3	0.1	1.5
Slovenia	1.3	1.5	1.5
All other destination markets	23.7	26.6	15.7
Total exports	100.0	100.0	100.0

Note.--Data reported under HS subheading 7308.20 include some merchandise outside of the scope of this investigation.

Source: Official export statistics from Italy under HS subheading 7308.20 as reported by Eurostat in the Global Trade Atlas database, accessed July 6, 2020.

Exports from Malaysia

According to GTA, the leading export markets for towers and lattice masts of iron or steel (including wind towers) from Malaysia are the United States and Australia (table VII-28). During 2019, the United States was the largest export market for these products from Malaysia, accounting for 66.2 percent of the total value in that year.

Table VII-28
Towers and lattice masts of iron or steel: Exports from Malaysia by destination market, 2017-19

Destination market	Calendar year		
	2017	2018	2019
	Value (1,000 dollars)		
United States	---	281	28,890
Australia	6,279	57,081	9,127
Singapore	302	269	2,912
Nigeria	---	---	734
Thailand	42	---	685
Cambodia	---	17	441
India	122	397	225
Oman	486	390	202
Indonesia	288	17	88
All other destination markets	1,242	2,047	310
Total exports	8,761	60,499	43,613
	Share of value (percent)		
United States	---	0.5	66.2
Australia	71.7	94.4	20.9
Singapore	3.4	0.4	6.7
Nigeria	---	---	1.7
Thailand	0.5	---	1.6
Cambodia	---	0.0	1.0
India	1.4	0.7	0.5
Oman	5.5	0.6	0.5
Indonesia	3.3	0.0	0.2
All other destination markets	14.2	3.4	0.7
Total exports	100.0	100.0	100.0

Note.--Data reported under HS subheading 7308.20 include some merchandise outside of the scope of this investigation.

Source: Official export statistics from Malaysia under HS subheading 7308.20 as reported by the Department of Statistics Malaysia in the Global Trade Atlas database, accessed July 6, 2020.

Exports from Mexico

According to GTA, the leading export market for towers and lattice masts of iron or steel (including wind towers) from Mexico is the United States (table VII-29). During 2019, the United States accounted for all of the recorded value of Mexican exports.

Table VII-29
Towers and lattice masts of iron or steel: Exports from Mexico by destination market, 2017-19

Destination market	Calendar year		
	2017	2018	2019
	Value (1,000 dollars)		
United States	18,755	16,772	1,313
Costa Rica	568	433	---
Guatemala	108	225	---
Brazil	95	193	---
Canada	---	135	---
Peru	220	95	---
Cuba	155	57	---
Spain	3,680	19	---
Colombia	19	17	---
All other destination markets	5,992	3	---
Total exports	29,591	17,949	1,313
	Share of value (percent)		
United States	63.4	93.4	100.0
Costa Rica	1.9	2.4	---
Guatemala	0.4	1.3	---
Brazil	0.3	1.1	---
Canada	---	0.8	---
Peru	0.7	0.5	---
Cuba	0.5	0.3	---
Spain	12.4	0.1	---
Colombia	0.1	0.1	---
All other destination markets	20.2	0.0	---
Total exports	100.0	100.0	100.0

Note.--Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Data reported under HS subheading 7308.20 include some merchandise outside of the scope of this investigation.

Source: Official export statistics from Mexico under HS subheading 7308.20 as reported by the Instituto Nacional de Estadística y Geografía (“INEGI”) in the Global Trade Atlas database, accessed July 6, 2020.

Exports from Spain

According to GTA, the leading export markets for towers and lattice masts of iron or steel (including wind towers) from Spain are the Netherlands, France, and Germany (table VII-30). During 2018, the United States was the sixth-largest export market for these products from Spain, accounting for 3.7 percent of the total value in that year.

Table VII-30
Towers and lattice masts of iron or steel: Exports from Spain by destination market, 2017-19

Destination market	Calendar year		
	2017	2018	2019
	Value (1,000 dollars)		
United States	16,457	9,287	12,813
Netherlands	2,568	2,171	91,727
France	8,167	75,157	70,079
Germany	9,355	54,993	52,065
Greece	8,218	29,131	14,688
Mauritania	408	2,811	13,618
Russia	---	4,633	11,952
United Kingdom	8,971	24,860	10,902
Italy	8,503	18,497	10,364
All other destination markets	96,503	95,542	58,542
Total exports	159,150	317,082	346,750
	Share of value (percent)		
United States	10.3	2.9	3.7
Netherlands	1.6	0.7	26.5
France	5.1	23.7	20.2
Germany	5.9	17.3	15.0
Greece	5.2	9.2	4.2
Mauritania	0.3	0.9	3.9
Russia	---	1.5	3.4
United Kingdom	5.6	7.8	3.1
Italy	5.3	5.8	3.0
All other destination markets	60.6	30.1	16.9
Total exports	100.0	100.0	100.0

Note.--Shares and ratios shown as “0.0” represent values greater than zero, but less than “0.05” percent. Data reported under HS subheading 7308.20 include some merchandise outside of the scope of this investigation.

Source: Official export statistics from Spain under HS subheading 7308.20 as reported by Eurostat in the Global Trade Atlas database, accessed July 6, 2020.

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
84 FR 33784, July 15, 2019	*Utility Scale Wind Towers From Canada, Indonesia, Korea, and Vietnam; Institution of Anti-Dumping and Countervailing Duty Investigations and Scheduling of Preliminary Phase Investigations*	https://www.govinfo.gov/content/pkg/FR-2019-07-15/pdf/2019-14982.pdf
84 FR 37992, August 5, 2019	*Utility Scale Wind Towers From Canada, Indonesia, the Republic of Korea, and the Socialist Republic of Vietnam: Initiation of Less-Than-Fair-Value Investigations*	https://www.govinfo.gov/content/pkg/FR-2019-08-05/pdf/2019-16655.pdf
84 FR 38216, August 6, 2019	*Utility Scale Wind Towers From Canada, Indonesia, and the Socialist Republic of Vietnam: Initiation of Countervailing Duty Investigations*	https://www.govinfo.gov/content/pkg/FR-2019-08-06/pdf/2019-16887.pdf
84 FR 68126, December 13, 2019	*Utility Scale Wind Towers From Canada: Preliminary Affirmative Countervailing Duty Determination, and Alignment of Final Determination With Final Antidumping Duty Determination*	https://www.govinfo.gov/content/pkg/FR-2019-12-13/pdf/2019-26945.pdf
84 FR 68109, December 13, 2019	*Utility Scale Wind Towers From Indonesia: Preliminary Affirmative Countervailing Duty Determination and Alignment of Final Determination With Final Antidumping Duty Determination*	https://www.govinfo.gov/content/pkg/FR-2019-12-13/pdf/2019-26946.pdf

Citation	Title	Link
84 FR 68104, December 13, 2019	*Utility Scale Wind Towers From the Socialist Republic of Vietnam: Preliminary Affirmative Countervailing Duty Determination and Alignment of Final Determination With Final Antidumping Duty Determination*	https://www.govinfo.gov/content/pkg/FR-2019-12-13/pdf/2019-26947.pdf
85 FR 8558, February 14, 2020	*Utility Scale Wind Towers From Indonesia: Preliminary Affirmative Determination of Sales at Less Than Fair Value, Preliminary Negative Determination of Critical Circumstances, Postponement of Final Determination, and Extension of Provisional Measures*	https://www.govinfo.gov/content/pkg/FR-2020-02-14/pdf/2020-02963.pdf
85 FR 8560, February 14, 2020	*Utility Scale Wind Towers From the Republic of Korea: Preliminary Affirmative Determination of Sales at Less Than Fair Value and Preliminary Affirmative Determination of Critical Circumstances*	https://www.govinfo.gov/content/pkg/FR-2020-02-14/pdf/2020-02715.pdf
85 FR 8562, February 14, 2020	*Utility Scale Wind Towers From Canada: Preliminary Affirmative Determination of Sales at Less-Than-Fair-Value, Preliminary Negative Determination of Critical Circumstances, and Postponement of Final Determination and Extension of Provisional Measures*	https://www.govinfo.gov/content/pkg/FR-2020-02-14/pdf/2020-02962.pdf
85 FR 8565, February 14, 2020	*Utility Scale Wind Towers From the Socialist Republic of Vietnam: Preliminary Affirmative Determination of Sales at Less-Than-Fair-Value and Preliminary Affirmative Determination of Critical Circumstances*	https://www.govinfo.gov/content/pkg/FR-2020-02-14/pdf/2020-02725.pdf

Citation	Title	Link
85 FR 11341, February 27, 2020	*Utility Scale Wind Towers From the Socialist Republic of Vietnam: Postponement of Final Determination of Sales at Less-Than-Fair-Value Investigation*	https://www.govinfo.gov/content/pkg/FR-2020-02-27/pdf/2020-03995.pdf
85 FR 16127, March 20, 2020	*Utility Scale Wind Towers From Canada, Indonesia, Korea, and Vietnam; Scheduling of the Final Phase of Countervailing Duty and Anti-Dumping Duty Investigations*	https://www.govinfo.gov/content/pkg/FR-2020-03-20/pdf/2020-05847.pdf
85 FR 40239, July 6, 2020	*Utility Scale Wind Towers From Canada: Final Determination of Sales at Less Than Fair Value and Final Negative Determination of Critical Circumstances*	https://www.govinfo.gov/content/pkg/FR-2020-07-06/pdf/2020-14530.pdf
85 FR 40243, July 6, 2020	*Utility Scale Wind Towers from the Republic of Korea: Final Determination of Sales at Less Than Fair Value and Final Affirmative Determination of Critical Circumstances*	https://www.govinfo.gov/content/pkg/FR-2020-07-06/pdf/2020-14438.pdf
85 FR 40226, July 6, 2020	*Utility Scale Wind Towers From the Socialist Republic of Vietnam: Final Determination of Sales at Less Than Fair Value and Final Affirmative Determination of Critical Circumstances*	https://www.govinfo.gov/content/pkg/FR-2020-07-06/pdf/2020-14531.pdf
85 FR 40231, July 6, 2020	*Utility Scale Wind Towers From Indonesia: Final Determination of Sales at Less Than Fair Value and Final Negative Determination of Critical Circumstances*	https://www.govinfo.gov/content/pkg/FR-2020-07-06/pdf/2020-14532.pdf
85 FR 40241, July 6, 2020	*Utility Scale Wind Towers From Indonesia: Final Affirmative Countervailing Duty Determination and Final Affirmative Determination of Critical Circumstances*	https://www.govinfo.gov/content/pkg/FR-2020-07-06/pdf/2020-14529.pdf

Citation	Title	Link
85 FR 40245, July 6, 2020	*Utility Scale Wind Towers From Canada: Final Affirmative Countervailing Duty Determination and Final Negative Determination of Critical Circumstances*	https://www.govinfo.gov/content/pkg/FR-2020-07-06/pdf/2020-14439.pdf
85 FR 40229, July 6, 2020	*Utility Scale Wind Towers From the Socialist Republic of Vietnam: Final Affirmative Countervailing Duty Determination and Negative Determination of Critical Circumstances*	https://www.govinfo.gov/content/pkg/FR-2020-07-06/pdf/2020-14528.pdf

APPENDIX B

LIST OF HEARING WITNESSES

CALENDAR OF PUBLIC HEARING

Those listed below will participate in the United States International Trade Commission's hearing via video conference:

Subject: Utility Scale Wind Towers from Canada, Indonesia, Korea, and Vietnam

Inv. Nos.: 701-TA-627-629 and 731-TA-1458-1461 (Final)

Date & Time: June 25, 2020 – 9:30 a.m.

EMBASSY APPEARANCE:

Embassy of the Republic of Indonesia
Washington, DC

Wijayanto (Mr.), **Commercial Attaché**

OPENING REMARKS:	**TIME ALLOCATION:**
Petitioner (**Daniel B. Pickard**, Wiley Rein LLP)	5 minutes
Respondents (**Ting-Ting Kao**, White & Case LLP)	5 minutes

In Support of the Imposition of Antidumping and Countervailing Duty Orders:	**TIME ALLOCATION:**
Wiley Rein LLP Washington, DC on behalf of	60 minutes

Wind Tower Trade Coalition

Eric Blashford, President and Chief Executive Officer,
Broadwind Energy, Inc.

Kerry Cole, President, Energy Equipment, Arcosa, Inc.

Daniel B. Pickard)
Robert E. DeFrancesco, III) – OF COUNSEL
Laura El-Sabaawi)

In Opposition to the Imposition of Antidumping and Countervailing Duty Orders:	**TIME ALLOCATION:**
White & Case LLP Washington, DC on behalf of Marmen Inc. Marmen Énergie Inc. Marmen Energy Co. **Patrick Pellerin**, President, Marmen, Inc. **Vincent Trudel**, Vice President, Marmen, Inc. **Jay Campbell**)) – OF COUNSEL **Ting-Ting Kao**)	60 minutes total
Alston & Bird LLP Washington, DC on behalf of American Wind Technology, Inc. Vestas Towers America, Inc. **Brian Choy**, Senior Director Supply Chain, Vestas **Andrew Cahill**, Senior Procurement Specialist, Regional Procurement AME, Vestas **Jon Chase**, Vice President, Public Affairs, Vestas **James P. Dougan**, Vice President, Economic Consulting Services, LLC **Jerrie V. Mirga**, Vice President, Economic Consulting Services, LLC **Jason M. Waite**)) – OF COUNSEL **Lian Yang**)	

In Opposition to the Imposition of
Antidumping and Countervailing Duty Orders (continued):

Covington & Burling LLP
Washington, DC
on behalf of

General Electric Company
GE Renewable Energy

Anthony Long, Senior Executive, Chief Procurement Officer
and Onshore Wind Supply Chain Leader,
GE Renewable Energy

Shara L. Aranoff)
) – OF COUNSEL
James M. Smith)

Grunfeld, Desiderio, Lebowitz, Silverman & Klestadt LLP
Washington, DC
on behalf of

CS Wind Vietnam Co., Ltd.
CS Wind Corporation

Ned H. Marshak)
) – OF COUNSEL
Kavita Mohan)

Arnold & Porter Kaye Scholer LLP
Washington, DC
on behalf of

Kousa International LLC
PT. Kenertec Power System

J. David Park)
Lynn M. Fischer Fox)
Daniel R. Wilson) – OF COUNSEL
Leslie C. Bailey)
Gina M. Colarusso)

In Opposition to the Imposition of
Antidumping and Countervailing Duty Orders (continued):

American Wind Energy Association ("AWEA")
Washington, DC

Johanna Jochum, Counsel, AWEA

Adam Stern, Research and Analytics Manager, AWEA

REBUTTAL/CLOSING REMARKS:

Petitioner (**Robert E. DeFrancesco, III**, Wiley Rein LLP)	5 minutes
Respondents (**Jay Campbell**, White & Case LLP; and **James P. Dougan** Economic Consulting Services, LLC)	5 minutes

-END-

APPENDIX C

SUMMARY DATA

Table C-1: Wind towers: Summary data concerning the total U.S. market C-3
Table C-2: Wind towers: Summary data concerning the merchant U.S. market C-6

Total Market

Table C-1
Wind towers: Summary data concerning the U.S. total market, 2017-19

(Quantity=towers; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per tower; Period changes=percent--exceptions noted)

	Reported data			Period changes		
	Calendar year			Comparison years		
	2017	2018	2019	2017-19	2017-18	2018-19
U.S. (total market) consumption quantity:						
Amount	***	***	***	▲***	▼***	▲***
Producers' share (fn1)	***	***	***	▼***	▲***	▼***
Importers' share (fn1):						
Canada	***	***	***	▲***	▼***	▲***
Indonesia	***	***	***	▲***	▲***	▼***
Korea	***	***	***	▼***	▼***	▲***
Vietnam	***	***	***	▲***	▲***	▲***
Subject sources	***	***	***	▲***	▲***	▲***
Nonsubject sources	***	***	***	▼***	▼***	▲***
All import sources	***	***	***	▲***	▼***	▲***
U.S. (total market) consumption value:						
Amount	***	***	***	▲***	▼***	▲***
Producers' share (fn1)	***	***	***	▼***	▲***	▼***
Importers' share (fn1):						
Canada	***	***	***	▲***	▼***	▲***
Indonesia	***	***	***	▲***	▲***	▲***
Korea	***	***	***	▼***	▼***	▼***
Vietnam	***	***	***	▲***	▲***	▲***
Subject sources	***	***	***	▲***	▼***	▲***
Nonsubject sources	***	***	***	▼***	▼***	▲***
All import sources	***	***	***	▲***	▼***	▲***
U.S. importers' U.S. shipments from.--						
Canada:						
Quantity	***	***	***	▲***	▼***	▲***
Value	***	***	***	▲***	▼***	▲***
Unit value	***	***	***	▲***	▲***	▲***
Ending inventory quantity	***	***	***	▲***	▲***	▼***
Indonesia:						
Quantity	***	***	***	▲***	▲***	▼***
Value	***	***	***	▲***	▲***	▲***
Unit value	***	***	***	▲***	▲***	▲***
Ending inventory quantity	***	***	***	***	***	***
Korea:						
Quantity	***	***	***	▲***	▼***	▲***
Value	***	***	***	▼***	▼***	▲***
Unit value	***	***	***	▼***	▼***	▼***
Ending inventory quantity	***	***	***	***	***	***

Table continued on next page.

Table C-1--Continued
Wind towers: Summary data concerning the U.S. total market, 2017-19
(Quantity=towers; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per tower; Period changes=percent--exceptions noted)

	Reported data			Period changes		
	Calendar year			Comparison years		
	2017	2018	2019	2017-19	2017-18	2018-19
U.S. importers' U.S. shipments from.--Continued						
Vietnam:						
Quantity	***	***	***	▲***	▲***	▲***
Value	***	***	***	▲***	▲***	▲***
Unit value	***	***	***	▲***	▲***	▲***
Ending inventory quantity	***	***	***	***	***	***
Subject sources:						
Quantity	993	971	1,581	▲59.2	▼(2.2)	▲62.8
Value	261,474	239,515	496,489	▲89.9	▼(8.4)	▲107.3
Unit value	$263,317	$246,668	$314,035	▲19.3	▼(6.3)	▲27.3
Ending inventory quantity	***	***	***	▲***	▲***	▼***
Nonsubject sources:						
Quantity	***	***	***	▼***	▼***	▲***
Value	***	***	***	▼***	▼***	▲***
Unit value	***	***	***	▼***	▲***	▼***
Ending inventory quantity	***	***	***	***	***	***
All import sources:						
Quantity	***	***	***	▲***	▼***	▲***
Value	***	***	***	▲***	▼***	▲***
Unit value	***	***	***	▲***	▼***	▲***
Ending inventory quantity	***	***	***	▲***	▲***	▼***
U.S. producers':						
Average capacity quantity	3,975	4,017	4,091	▲2.9	▲1.1	▲1.8
Production quantity	2,764	2,672	2,895	▲4.7	▼(3.3)	▲8.3
Capacity utilization (fn1)	69.5	66.5	70.8	▲1.2	▼(3.0)	▲4.2
U.S. shipments:						
Quantity	2,666	2,698	2,964	▲11.2	▲1.2	▲9.9
Value	843,586	859,598	995,108	▲18.0	▲1.9	▲15.8
Unit value	$316,424	$318,606	$335,731	▲6.1	▲0.7	▲5.4
Export shipments:						
Quantity	---	---	---	---	---	---
Value	---	---	---	---	---	---
Unit value	---	---	---	---	---	---
Ending inventory quantity	***	***	***	▼***	▼***	▼***
Inventories/total shipments (fn1)	***	***	***	▼***	▼***	▼***
Production workers	2,309	2,149	2,186	▼(5.3)	▼(6.9)	▲1.7
Hours worked (1,000s)	4,852	4,409	4,906	▲1.1	▼(9.1)	▲11.3
Wages paid ($1,000)	159,858	156,739	164,875	▲3.1	▼(2.0)	▲5.2
Hourly wages (dollars per hour)	$32.95	$35.55	$33.61	▲2.0	▲7.9	▼(5.5)
Productivity (units per 10,000 hours)	5.7	6.1	5.9	▲3.6	▲6.4	▼(2.6)
Unit labor costs	$57,836	$58,660	$56,952	▼(1.5)	▲1.4	▼(2.9)

Table continued on next page.

Table C-1--Continued
Wind towers: Summary data concerning the U.S. total market, 2017-19
(Quantity=towers; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per tower; Period changes=percent--exceptions noted)

	Reported data			Period changes		
	Calendar year			Comparison years		
	2017	2018	2019	2017-19	2017-18	2018-19
U.S. producers':--Continued						
Net sales:						
Quantity	2,666	2,698	2,964	▲11.2	▲1.2	▲9.9
Value	843,586	859,598	995,108	▲18.0	▲1.9	▲15.8
Unit value	$316,424	$318,606	$335,731	▲***	▲***	▲***
Cost of goods sold (COGS)	727,673	789,365	904,581	▲24.3	▲8.5	▲14.6
Gross profit or (loss) (fn2)	115,913	70,233	90,527	▼(21.9)	▼(39.4)	▲28.9
SG&A expenses	28,110	25,317	28,143	▲0.1	▼(9.9)	▲11.2
Operating income or (loss) (fn2)	87,803	44,916	62,384	▼(29.0)	▼(48.8)	▲38.9
Net income or (loss) (fn2)	85,024	50,861	57,084	▼(32.9)	▼(40.2)	▲12.2
Capital expenditures	41,751	26,707	17,323	▼(58.5)	▼(36.0)	▼(35.1)
Research and development expenses	345	200	235	▼(31.9)	▼(42.0)	▲17.5
Net assets	411,357	433,347	335,183	▼(18.5)	▲5.3	▼(22.7)
Unit COGS	$272,946	$292,574	$305,189	▲11.8	▲7.2	▲4.3
Unit SG&A expenses	$10,544	$9,384	$9,495	▼(9.9)	▼(11.0)	▲1.2
Unit operating income or (loss) (fn2)	$32,934	$16,648	$21,047	▼(36.1)	▼(49.5)	▲26.4
Unit net income or (loss) (fn2)	$31,892	$18,851	$19,259	▼(39.6)	▼(40.9)	▲2.2
COGS/sales (fn1)	86.3	91.8	90.9	▲4.6	▲5.6	▼(0.9)
Operating income or (loss)/sales (fn1)	10.4	5.2	6.3	▼(4.1)	▼(5.2)	▲1.0
Net income or (loss)/sales (fn1)	10.1	5.9	5.7	▼(4.3)	▼(4.2)	▼(0.2)

Note.--Shares and ratios shown as “0.0” percent represent non-zero values less than “0.05” percent (if positive) and greater than “(0.05)” percent (if negative). Zeroes, null values, and undefined calculations are suppressed and shown as “---“. Period changes preceded by a “▲” represent an increase, while period changes preceded by a “▼” represent a decrease.

fn1.--Reported data are in percent and period changes are in percentage points.
fn2.--Percent changes only calculated when both comparison values represent profits; The directional change in profitability provided when one or both comparison values represent a loss.

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

Merchant Market

Table C-2
Wind towers: Summary data concerning the U.S. merchant market, 2017-19

(Quantity=towers; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per tower; Period changes=percent--exceptions noted)

	Reported data			Period changes		
	Calendar year			Comparison years		
	2017	2018	2019	2017-19	2017-18	2018-19
U.S. (merchant market) consumption quantity:						
Amount	***	***	***	▲***	▼***	▲***
Producers' share (fn1)	***	***	***	▼***	▲***	▼***
Importers' share (fn1):						
Canada	***	***	***	▲***	▼***	▲***
Indonesia	***	***	***	▼***	▲***	▼***
Korea	***	***	***	▼***	▼***	▼***
Vietnam	***	***	***	▲***	▲***	▲***
Subject sources	***	***	***	▲***	▲***	▲***
Nonsubject sources	***	***	***	▼***	▼***	▲***
All import sources	***	***	***	▲***	▼***	▲***
U.S. (merchant market) consumption value:						
Amount	***	***	***	▲***	▼***	▲***
Producers' share (fn1)	***	***	***	▼***	▲***	▼***
Importers' share (fn1):						
Canada	***	***	***	▲***	▼***	▲***
Indonesia	***	***	***	▲***	▲***	▲***
Korea	***	***	***	▼***	▼***	▼***
Vietnam	***	***	***	▲***	▲***	▲***
Subject sources	***	***	***	▲***	▲***	▲***
Nonsubject sources	***	***	***	▼***	▼***	▲***
All import sources	***	***	***	▲***	▼***	▲***
U.S. importers' U.S. shipments from.--						
Canada:						
Quantity	***	***	***	▲***	▼***	▲***
Value	***	***	***	▲***	▼***	▲***
Unit value	***	***	***	▲***	▲***	▲***
Ending inventory quantity	***	***	***	▲***	▲***	▼***
Indonesia:						
Quantity	***	***	***	▲***	▲***	▼***
Value	***	***	***	▲***	▲***	▲***
Unit value	***	***	***	▲***	▲***	▲***
Ending inventory quantity	***	***	***	***	***	***
Korea:						
Quantity	***	***	***	▲***	▼***	▲***
Value	***	***	***	▼***	▼***	▲***
Unit value	***	***	***	▼***	▼***	▼***
Ending inventory quantity	***	***	***	***	***	***

Table continued on next page.

Table C-2--Continued
Wind towers: Summary data concerning the U.S. merchant market, 2017-19
(Quantity=towers; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per tower; Period changes=percent--exceptions noted)

	Reported data			Period changes		
	Calendar year			Comparison years		
	2017	2018	2019	2017-19	2017-18	2018-19
U.S. importers' U.S. shipments from.--Continued						
Vietnam:						
Quantity	***	***	***	▲***	▲***	▲***
Value	***	***	***	▲***	▲***	▲***
Unit value	***	***	***	▲***	▲***	▲***
Ending inventory quantity	***	***	***	***	***	***
Subject sources:						
Quantity	993	971	1,581	▲59.2	▼(2.2)	▲62.8
Value	261,474	239,515	496,489	▲89.9	▼(8.4)	▲107.3
Unit value	$263,317	$246,668	$314,035	▲19.3	▼(6.3)	▲27.3
Ending inventory quantity	***	***	***	▲***	▲***	▼***
Nonsubject sources:						
Quantity	***	***	***	▼***	▼***	▲***
Value	***	***	***	▼***	▼***	▲***
Unit value	***	***	***	▼***	▲***	▼***
Ending inventory quantity	***	***	***	***	***	***
All import sources:						
Quantity	***	***	***	▲***	▼***	▲***
Value	***	***	***	▲***	▼***	▲***
Unit value	***	***	***	▲***	▼***	▲***
Ending inventory quantity	***	***	***	▲***	▲***	▼***
U.S. producers':						
Commercial U.S. shipments:						
Quantity	***	***	***	▲***	▲***	▲***
Value	***	***	***	▲***	▼***	▲***
Unit value	***	***	***	▲***	▼***	▲***

Table continued on next page.

Table C-2--Continued
Wind towers: Summary data concerning the U.S. merchant market, 2017-19
(Quantity=towers; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per tower; Period changes=percent--exceptions noted)

	Reported data			Period changes		
	Calendar year			Comparison years		
	2017	2018	2019	2017-19	2017-18	2018-19
U.S. producers':--Conintued						
Commercial sales:						
Quantity	***	***	***	▲***	▲***	▲***
Value	***	***	***	▲***	▼***	▲***
Unit value	***	***	***	▲***	▼***	▲***
Cost of goods sold (COGS)	***	***	***	▲***	▲***	▲***
Gross profit or (loss) (fn2)	***	***	***	▼***	▼***	▲***
SG&A expenses	***	***	***	▲***	▼***	▲***
Operating income or (loss) (fn2)	***	***	***	▼***	▼***	▲***
Net income or (loss) (fn2)	***	***	***	▼***	▼***	▼***
Unit COGS	***	***	***	▲***	▲***	▲***
Unit SG&A expenses	***	***	***	▼***	▼***	▼***
Unit operating income or (loss) (fn2)	***	***	***	▼***	▼***	▲***
Unit net income or (loss) (fn2)	***	***	***	▼***	▼***	▼***
COGS/sales (fn1)	***	***	***	▲***	▲***	▲***
Operating income or (loss)/sales (fn1)	***	***	***	▼***	▼***	▲***
Net income or (loss)/sales (fn1)	***	***	***	▼***	▼***	▼***

Notes:

Note.--Shares and ratios shown as “0.0” percent represent non-zero values less than “0.05” percent (if positive) and greater than “(0.05)” percent (if negative). Zeroes, null values, and undefined calculations are suppressed and shown as “---“. Period changes preceded by a “▲” represent an increase, while period changes preceded by a “▼” represent a decrease.

fn1.--Reported data are in percent and period changes are in percentage points.
fn2.--Percent changes only calculated when both comparison values represent profits; The directional change in profitability provided when one or both comparison values represent a loss.

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

APPENDIX D

U.S. PRODUCERS' AND U.S. IMPORTERS' U.S. SHIPMENTS, BY GEOGRAPHIC LOCATION AND SOURCE OF SUPPLY

Note.-- These tables have been provided to illustrate the presence of U.S. producers' and U.S. importers' U.S. shipments, by geographic location and source of supply. Any percentage changes or directional trends should be examined with consideration of, and in conjunction with, the corresponding quantity data.

Table D-1
Wind towers: U.S. producers' and U.S. importers' U.S. shipments, by geographic location and source of supply, 2017-19

Destination market	Calendar year			Comparison years		
	2017	2018	2019	2017-19	2017-18	2018-19
	Quantity (towers)			Change in quantity (percent)		
U.S. producers' U.S. shipments: United States.-- Northeast	***	***	***	▲***	▲***	▲***
Upper Midwest	***	***	***	▲***	▲***	▲***
Lower Midwest	***	***	***	▲***	▼***	▲***
Upper Southeast	***	***	***	▲***	***	▲***
Lower Southeast	***	***	***	▼***	▲***	▼***
Central Southwest	***	***	***	▲***	▼***	▲***
Mountains	***	***	***	▲***	▼***	▲***
Pacific Coast	***	***	***	▼***	▼***	▼***
Other	***	***	***	▼***	▼***	***
All regions	***	***	***	▲***	▼***	▲***
	Share of quantity by region within source of supply (percent)			Change share region served (percentage points)		
U.S. producers' U.S. shipments: United States.-- Northeast	***	***	***	▲***	▲***	▲***
Upper Midwest	***	***	***	▲***	▲***	▲***
Lower Midwest	***	***	***	▼***	▼***	▼***
Upper Southeast	***	***	***	▲***	***	▲***
Lower Southeast	***	***	***	▼***	▲***	▼***
Central Southwest	***	***	***	▼***	▼***	▼***
Mountains	***	***	***	▼***	▼***	▲***
Pacific Coast	***	***	***	▼***	▼***	▼***
Other	***	***	***	▼***	▼***	***
All regions	***	***	***	***	***	***
	Share of quantity by source of supply within region (percent)			Change share source of supply (percentage points)		
U.S. producers' U.S. shipments: United States.-- Northeast	***	***	***	▲***	▲***	▲***
Upper Midwest	***	***	***	▲***	▼***	▲***
Lower Midwest	***	***	***	▲***	▼***	▲***
Upper Southeast	***	***	***	▲***	***	▲***
Lower Southeast	***	***	***	▼***	▼***	▼***
Central Southwest	***	***	***	▼***	▼***	▼***
Mountains	***	***	***	▼***	▼***	▼***
Pacific Coast	***	***	***	▼***	▼***	▼***
Other	***	***	***	▼***	▼***	***
All regions	***	***	***	▼***	▼***	▼***

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Table D-1--Continued
Wind towers: U.S. producers' and U.S. importers' U.S. shipments, by geographic location and source of supply, 2017-19

Destination market	Calendar year			Comparison years		
	2017	2018	2019	2017-19	2017-18	2018-19
	Quantity (towers)			Change in quantity (percent)		
U.S. importers' U.S. shipments: Canada.-- Northeast	***	***	***	▲***	▼***	▲***
Upper Midwest	***	***	***	▲***	▼***	▲***
Lower Midwest	***	***	***	▲***	▼***	▲***
Upper Southeast	***	***	***	▲***	***	▲***
Lower Southeast	***	***	***	▲***	***	▲***
Central Southwest	***	***	***	▲***	▼***	▲***
Mountains	***	***	***	▲***	▲***	▲***
Pacific Coast	***	***	***	***	***	***
Other	***	***	***	***	***	***
All regions	***	***	***	▲***	▼***	▲***
	Share of quantity by region within source of supply (percent)			Change share region served (percentage points)		
U.S. importers' U.S. shipments: Canada.-- Northeast	***	***	***	▼***	▼***	▼***
Upper Midwest	***	***	***	▲***	▲***	▲***
Lower Midwest	***	***	***	▼***	▲***	▼***
Upper Southeast	***	***	***	▲***	***	▲***
Lower Southeast	***	***	***	▲***	***	▲***
Central Southwest	***	***	***	▼***	▼***	▲***
Mountains	***	***	***	▲***	▲***	▲***
Pacific Coast	***	***	***	***	***	***
Other	***	***	***	***	***	***
All regions	***	***	***	***	***	***
	Share of quantity by source of supply within region (percent)			Change share source of supply (percentage points)		
U.S. importers' U.S. shipments: Canada.-- Northeast	***	***	***	▼***	▼***	▲***
Upper Midwest	***	***	***	▼***	▼***	▲***
Lower Midwest	***	***	***	▲***	▼***	▲***
Upper Southeast	***	***	***	▲***	***	▲***
Lower Southeast	***	***	***	▲***	***	▲***
Central Southwest	***	***	***	▼***	▼***	▲***
Mountains	***	***	***	▲***	▲***	▲***
Pacific Coast	***	***	***	***	***	***
Other	***	***	***	***	***	***
All regions	***	***	***	▲***	▼***	▲***

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Table D-1--Continued
Wind towers: U.S. producers' and U.S. importers' U.S. shipments, by geographic location and source of supply, 2017-19

Destination market	Calendar year			Comparison years		
	2017	2018	2019	2017-19	2017-18	2018-19
	Quantity (towers)			Change in quantity (percent)		
U.S. importers' U.S. shipments: Indonesia.-- Northeast	***	***	***	***	***	***
Upper Midwest	***	***	***	***	***	***
Lower Midwest	***	***	***	***	▲***	▼***
Upper Southeast	***	***	***	***	***	***
Lower Southeast	***	***	***	***	***	***
Central Southwest	***	***	***	▲***	▲***	▲***
Mountains	***	***	***	***	***	***
Pacific Coast	***	***	***	***	***	***
Other	***	***	***	***	***	***
All regions	***	***	***	▲***	▲***	▼***
	Share of quantity by region within source of supply (percent)			Change share region served (percentage points)		
U.S. importers' U.S. shipments: Indonesia.-- Northeast	***	***	***	***	***	***
Upper Midwest	***	***	***	***	***	***
Lower Midwest	***	***	***	***	▲***	▼***
Upper Southeast	***	***	***	***	***	***
Lower Southeast	***	***	***	***	***	***
Central Southwest	***	***	***	***	▼***	▲***
Mountains	***	***	***	***	***	***
Pacific Coast	***	***	***	***	***	***
Other	***	***	***	***	***	***
All regions	***	***	***	***	***	***
	Share of quantity by source of supply within region (percent)			Change share source of supply (percentage points)		
U.S. importers' U.S. shipments: Indonesia.-- Northeast	***	***	***	***	***	***
Upper Midwest	***	***	***	***	***	***
Lower Midwest	***	***	***	***	▲***	▼***
Upper Southeast	***	***	***	***	***	***
Lower Southeast	***	***	***	***	***	***
Central Southwest	***	***	***	▼***	▲***	▼***
Mountains	***	***	***	***	***	***
Pacific Coast	***	***	***	***	***	***
Other	***	***	***	***	***	***
All regions	***	***	***	▼***	▲***	▼***

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Table D-1--Continued
Wind towers: U.S. producers' and U.S. importers' U.S. shipments, by geographic location and source of supply, 2017-19

Destination market	Calendar year			Comparison years		
	2017	2018	2019	2017-19	2017-18	2018-19
	Quantity (towers)			Change in quantity (percent)		
U.S. importers' U.S. shipments: Korea.-- Northeast	***	***	***	***	▲***	▼***
Upper Midwest	***	***	***	***	▲***	▼***
Lower Midwest	***	***	***	▲***	▲***	▲***
Upper Southeast	***	***	***	***	***	***
Lower Southeast	***	***	***	***	***	***
Central Southwest	***	***	***	▼***	▼***	▲***
Mountains	***	***	***	***	***	***
Pacific Coast	***	***	***	▲***	▲***	▲***
Other	***	***	***	***	***	***
All regions	***	***	***	▲***	▼***	▲***
	Share of quantity by region within source of supply (percent)			Change share region served (percentage points)		
U.S. importers' U.S. shipments: Korea.-- Northeast	***	***	***	***	▲***	▼***
Upper Midwest	***	***	***	***	▲***	▼***
Lower Midwest	***	***	***	▲***	▲***	▼***
Upper Southeast	***	***	***	***	***	***
Lower Southeast	***	***	***	***	***	***
Central Southwest	***	***	***	▼***	▼***	▲***
Mountains	***	***	***	***	***	***
Pacific Coast	***	***	***	▲***	▲***	▼***
Other	***	***	***	***	***	***
All regions	***	***	***	***	***	***
	Share of quantity by source of supply within region (percent)			Change share source of supply (percentage points)		
U.S. importers' U.S. shipments: Korea.-- Northeast	***	***	***	***	▲***	▼***
Upper Midwest	***	***	***	***	▲***	▼***
Lower Midwest	***	***	***	▲***	▲***	▲***
Upper Southeast	***	***	***	***	***	***
Lower Southeast	***	***	***	***	***	***
Central Southwest	***	***	***	▼***	▼***	▲***
Mountains	***	***	***	***	***	***
Pacific Coast	***	***	***	▼***	▼***	▼***
Other	***	***	***	***	***	***
All regions	***	***	***	▼***	▼***	▲***

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Table D-1--Continued
Wind towers: U.S. producers' and U.S. importers' U.S. shipments, by geographic location and source of supply, 2017-19

Destination market	Calendar year			Comparison years		
	2017	2018	2019	2017-19	2017-18	2018-19
	Quantity (towers)			Change in quantity (percent)		
U.S. importers' U.S. shipments: Vietnam.-- Northeast	***	***	***	***	***	***
Upper Midwest	***	***	***	***	***	***
Lower Midwest	***	***	***	***	***	***
Upper Southeast	***	***	***	***	***	***
Lower Southeast	***	***	***	***	***	***
Central Southwest	***	***	***	▲***	▲***	▲***
Mountains	***	***	***	***	***	***
Pacific Coast	***	***	***	▲***	▲***	▲***
Other	***	***	***	***	***	***
All regions	***	***	***	▲***	▲***	▲***
	Share of quantity by region within source of supply (percent)			Change share region served (percentage points)		
U.S. importers' U.S. shipments: Vietnam.-- Northeast	***	***	***	***	***	***
Upper Midwest	***	***	***	***	***	***
Lower Midwest	***	***	***	***	***	***
Upper Southeast	***	***	***	***	***	***
Lower Southeast	***	***	***	***	***	***
Central Southwest	***	***	***	▲***	▲***	▲***
Mountains	***	***	***	***	***	***
Pacific Coast	***	***	***	▲***	▲***	▼***
Other	***	***	***	***	***	***
All regions	***	***	***	▲***	▲***	***
	Share of quantity by source of supply within region (percent)			Change share source of supply (percentage points)		
U.S. importers' U.S. shipments: Vietnam.-- Northeast	***	***	***	***	***	***
Upper Midwest	***	***	***	***	***	***
Lower Midwest	***	***	***	***	***	***
Upper Southeast	***	***	***	***	***	***
Lower Southeast	***	***	***	***	***	***
Central Southwest	***	***	***	▲***	▲***	▲***
Mountains	***	***	***	***	***	***
Pacific Coast	***	***	***	▲***	▲***	▲***
Other	***	***	***	***	***	***
All regions	***	***	***	▲***	▲***	▲***

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Table D-1--Continued
Wind towers: U.S. producers' and U.S. importers' U.S. shipments, by geographic location and source of supply, 2017-19

Destination market	Calendar year			Comparison years		
	2017	2018	2019	2017-19	2017-18	2018-19
	Quantity (towers)			Change in quantity (percent)		
U.S. importers' U.S. shipments: Subject sources.-- Northeast	***	***	***	▼***	▼***	▲***
Upper Midwest	***	***	***	▲***	▲***	▲***
Lower Midwest	***	***	***	▲***	▲***	▼***
Upper Southeast	***	***	***	▲***	***	▲***
Lower Southeast	***	***	***	▲***	***	▲***
Central Southwest	***	***	***	▲***	▼***	▲***
Mountains	***	***	***	▲***	▲***	▲***
Pacific Coast	***	***	***	▲***	▲***	▲***
Other	***	***	***	***	***	***
All regions	***	***	***	▲***	▲***	▲***
	Share of quantity by region within source of supply (percent)			Change share region served (percentage points)		
U.S. importers' U.S. shipments: Subject sources.-- Northeast	***	***	***	▼***	▼***	▼***
Upper Midwest	***	***	***	▲***	▲***	▼***
Lower Midwest	***	***	***	▲***	▲***	▼***
Upper Southeast	***	***	***	▲***	***	▲***
Lower Southeast	***	***	***	▲***	***	▲***
Central Southwest	***	***	***	▼***	▼***	▲***
Mountains	***	***	***	▲***	▲***	▲***
Pacific Coast	***	***	***	▲***	▲***	▼***
Other	***	***	***	***	***	***
All regions	***	***	***	***	***	***
	Share of quantity by source of supply within region (percent)			Change share source of supply (percentage points)		
U.S. importers' U.S. shipments: Subject sources.-- Northeast	***	***	***	▼***	▼***	▼***
Upper Midwest	***	***	***	▲***	▲***	▼***
Lower Midwest	***	***	***	▲***	▲***	▼***
Upper Southeast	***	***	***	▲***	***	▲***
Lower Southeast	***	***	***	▲***	***	▲***
Central Southwest	***	***	***	▲***	▼***	▲***
Mountains	***	***	***	▲***	▲***	▲***
Pacific Coast	***	***	***	▲***	▲***	▲***
Other	***	***	***	***	***	***
All regions	***	***	***	▲***	▲***	▲***

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Table D-1--Continued
Wind towers: U.S. producers' and U.S. importers' U.S. shipments, by geographic location and source of supply, 2017-19

Destination market	Calendar year			Comparison years		
	2017	2018	2019	2017-19	2017-18	2018-19
	Quantity (towers)			Change in quantity (percent)		
Combined producer and subject importer.-- Northeast	***	***	***	▼***	▼***	▲***
Upper Midwest	***	***	***	▲***	▲***	▲***
Lower Midwest	***	***	***	▲***	▲***	▲***
Upper Southeast	***	***	***	▲***	***	▲***
Lower Southeast	***	***	***	▼***	▲***	▼***
Central Southwest	***	***	***	▲***	▼***	▲***
Mountains	***	***	***	▲***	▼***	▲***
Pacific Coast	***	***	***	▲***	▲***	▲***
Other	***	***	***	▼***	▼***	***
All regions	***	***	***	▲***	▼***	▲***
	Share of quantity by region within source of supply (percent)			Change share region served (percentage points)		
Combined producer and subject importer.-- Northeast	***	***	***	▼***	▼***	▲***
Upper Midwest	***	***	***	▲***	▲***	▲***
Lower Midwest	***	***	***	▼***	▲***	▼***
Upper Southeast	***	***	***	▲***	***	▲***
Lower Southeast	***	***	***	▼***	▲***	▼***
Central Southwest	***	***	***	▼***	▼***	▲***
Mountains	***	***	***	▼***	▼***	▲***
Pacific Coast	***	***	***	▲***	▲***	▼***
Other	***	***	***	▼***	▼***	***
All regions	***	***	***	***	***	***
	Share of quantity by source of supply within region (percent)			Change share source of supply (percentage points)		
Combined producer and subject importer.-- Northeast	***	***	***	***	***	***
Upper Midwest	***	***	***	***	***	***
Lower Midwest	***	***	***	***	***	***
Upper Southeast	***	***	***	▲***	***	▲***
Lower Southeast	***	***	***	***	***	***
Central Southwest	***	***	***	***	***	***
Mountains	***	***	***	***	***	***
Pacific Coast	***	***	***	***	***	***
Other	***	***	***	▼***	▼***	***
All regions	***	***	***	***	***	***

Note.--Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

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

Table D-2
Wind towers: U.S. producers' and U.S. importers' U.S. shipments, by geographic location, 2017-19

Destination market	Calendar year			Comparison years		
	2017	2018	2019	2017-19	2017-18	2018-19
	Quantity (towers)			Change in quantity (percent)		
U.S. shipments to the *Northeast*.-- U.S. producers	***	***	***	▲***	▲***	▲***
Subject U.S. importers.-- Canada	***	***	***	▼***	▼***	▲***
Indonesia	***	***	***	***	***	***
Korea	***	***	***	***	▲***	▼***
Vietnam	***	***	***	***	***	***
Subject sources	***	***	***	▼***	▼***	▲***
Combined producers and subject importers	***	***	***	▼***	▼***	▲***
	Quantity (towers)			Change in quantity (percent)		
U.S. shipments to the *Upper Midwest*.-- U.S. producers	***	***	***	▲***	▲***	▲***
Subject U.S. importers.-- Canada	***	***	***	▲***	▼***	▲***
Indonesia	***	***	***	***	***	***
Korea	***	***	***	***	▲***	▼***
Vietnam	***	***	***	***	***	***
Subject sources	***	***	***	▲***	▲***	▲***
Combined producers and subject importers	***	***	***	▲***	▲***	▲***
	Quantity (towers)			Change in quantity (percent)		
U.S. shipments to the *Lower Midwest*.-- U.S. producers	***	***	***	▲***	▼***	▲***
Subject U.S. importers.-- Canada	***	***	***	▲***	▼***	▲***
Indonesia	***	***	***	***	▲***	▼***
Korea	***	***	***	▲***	▲***	▲***
Vietnam	***	***	***	***	***	***
Subject sources	***	***	***	▲***	▲***	▼***
Combined producers and subject importers	***	***	***	▲***	▲***	▲***

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Table D-2--Continued
Wind towers: U.S. producers' and U.S. importers' U.S. shipments, by geographic location, 2017-19

Destination market	Calendar year			Comparison years		
	2017	2018	2019	2017-19	2017-18	2018-19
	Quantity (towers)			Change in quantity (percent)		
U.S. shipments to the *Upper Southeast*.-- U.S. producers	***	***	***	▲***	***	▲***
Subject U.S. importers.-- Canada	***	***	***	▲***	***	▲***
Indonesia	***	***	***	***	***	***
Korea	***	***	***	***	***	***
Vietnam	***	***	***	***	***	***
Subject sources	***	***	***	▲***	***	▲***
Combined producers and subject importers	***	***	***	▲***	***	▲***
	Quantity (towers)			Change in quantity (percent)		
U.S. shipments to the *Lower Southeast*.-- U.S. producers	***	***	***	▼***	▲***	▼***
Subject U.S. importers.-- Canada	***	***	***	▲***	***	▲***
Indonesia	***	***	***	***	***	***
Korea	***	***	***	***	***	***
Vietnam	***	***	***	***	***	***
Subject sources	***	***	***	▲***	***	▲***
Combined producers and subject importers	***	***	***	▼***	▲***	▼***
	Quantity (towers)			Change in quantity (percent)		
U.S. shipments to the *Central Southwest*.-- U.S. producers	***	***	***	▲***	▼***	▲***
Subject U.S. importers.-- Canada	***	***	***	▼***	▼***	▲***
Indonesia	***	***	***	▲***	▲***	▲***
Korea	***	***	***	▼***	▼***	▲***
Vietnam	***	***	***	▲***	▲***	▲***
Subject sources	***	***	***	▲***	▼***	▲***
Combined producers and subject importers	***	***	***	▲***	▼***	▲***

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Table D-2--Continued
Wind towers: U.S. producers' and U.S. importers' U.S. shipments, by geographic location, 2017-19

Destination market	Calendar year			Comparison years		
	2017	2018	2019	2017-19	2017-18	2018-19
	Quantity (towers)			Change in quantity (percent)		
U.S. shipments to the *Mountains*.-- U.S. producers	***	***	***	▲***	▲***	▲***
Subject U.S. importers.-- Canada	***	***	***	▲***	▲***	▲***
Indonesia	***	***	***	***	***	***
Korea	***	***	***	***	***	***
Vietnam	***	***	***	***	***	***
Subject sources	***	***	***	▲***	▲***	▲***
Combined producers and subject importers	***	***	***	▲***	▼***	▲***
	Quantity (towers)			Change in quantity (percent)		
U.S. shipments to the *Pacific Coast*.-- U.S. producers	***	***	***	▼***	▼***	▼***
Subject U.S. importers.-- Canada	***	***	***	***	***	***
Indonesia	***	***	***	***	***	***
Korea	***	***	***	▲***	▲***	▲***
Vietnam	***	***	***	▲***	▲***	▲***
Subject sources	***	***	***	▲***	▲***	▲***
Combined producers and subject importers	***	***	***	▲***	▲***	▲***
	Quantity (towers)			Change in quantity (percent)		
U.S. shipments to the *Other*.-- U.S. producers	***	***	***	▼***	▼***	***
Subject U.S. importers.-- Canada	***	***	***	***	***	***
Indonesia	***	***	***	***	***	***
Korea	***	***	***	***	***	***
Vietnam	***	***	***	***	***	***
Subject sources	***	***	***	***	***	***
Combined producers and subject importers	***	***	***	▼***	▼***	***

Note.--Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

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

APPENDIX E

U.S. PRODUCERS' AND U.S. IMPORTERS' U.S. SHIPMENTS OF FULL AND PARTIAL WIND TOWERS

U.S. producers' and U.S. importers' shipments of full and partial wind towers

Table E-1 presents information regarding U.S. producers' and U.S. importers' shipments of full and partial wind towers during 2017-19. The majority of U.S. shipments of wind towers imported from subject sources were of full towers, with the share of the quantity of shipments sold as partial towers accounting for between *** percent and *** percent during 2017-19.

During 2017-19, the quantity and value of U.S. producers' U.S. shipments sold as full towers increased by *** percent and *** percent, respectively. The quantity and value of U.S. producers' U.S. shipments sold as partial towers also increased during 2017-19 by *** percent and *** percent, respectively. While the unit value of U.S. producers' U.S. shipments sold as full towers increased during 2017-19 by *** percent, the unit value of U.S. producers' U.S. shipments sold as partial towers decreased during 2017-19 by *** percent.

At the beginning of the period in 2017, the majority of U.S. shipments of wind towers imported from Canada were sold as full towers, but by the end of the period in 2019, the majority of U.S. shipments of wind towers imported from Canada were sold as partial towers. During 2017-19, the quantity of U.S. shipments of wind towers imported from Canada sold as full towers decreased by *** percent, while the value of these shipments increased by *** percent. The quantity and value of U.S. shipments of wind towers imported from Canada sold as partial towers increased by *** percent and *** percent, respectively, during 2017-19. The unit value of U.S. shipments of wind towers imported from Canada sold as full towers increased by *** percent during 2017-19, while the unit value of U.S. shipments of wind towers imported from Canada sold as partial towers decreased by *** percent during 2017-19.

There were *** shipments of wind towers imported from Indonesia sold as partial towers in 2017 or 2018, and *** sold as partial towers in 2019. The quantity and value of U.S. shipments of wind towers imported from Indonesia sold as full towers increased during 2017-19, by *** percent and *** percent, respectively.

There were *** shipments of wind towers imported from Korea sold as partial towers during 2017-19. The quantity of U.S. shipments of wind towers imported from Korea sold as full towers increased during 2017-19, by *** percent, while the value of U.S. shipments of wind towers imported from Korea sold as full towers decreased by *** percent.

As discussed in Part IV, there were *** of wind towers imported from Vietnam in 2017, and there were *** of wind towers imported from Vietnam sold as partial towers in 2019. In

2018, *** percent of the quantity of wind tower shipments from Vietnam were of partial towers.[1]

There were *** shipments of wind towers imported from nonsubject sources sold as partial towers during 2017-19. The quantity and value of U.S. shipments of wind towers imported from nonsubject sources sold as full towers decreased during 2017-19, by *** percent and *** percent, respectively.

[1] Importer *** explained in its questionnaire that the firm imported and supplied ***.

Table E-1
Wind towers: U.S. producers' and U.S. importers' shipments of full and partial wind towers, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
U.S. shipments: U.S. producers.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	2,666	2,698	2,964
	Value (1,000 dollars)		
U.S. shipments: U.S. producers.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	843,586	859,598	995,108
	Unit value (dollars per tower)		
U.S. shipments: U.S. producers.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	316,424	318,606	335,731
	Share of quantity (percent)		
U.S. shipments: U.S. producers.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	100.0	100.0	100.0
	Share of value (percent)		
U.S. shipments: U.S. producers.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	100.0	100.0	100.0

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Table E-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of full and partial wind towers, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
U.S. shipments: Canada.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Value (1,000 dollars)		
U.S. shipments: Canada.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Unit value (dollars per tower)		
U.S. shipments: Canada.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Share of quantity (percent)		
U.S. shipments: Canada.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Share of value (percent)		
U.S. shipments: Canada.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***

Table continued on next page.

Table E-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of full and partial wind towers, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
U.S. shipments: Indonesia.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Value (1,000 dollars)		
U.S. shipments: Indonesia.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Unit value (dollars per tower)		
U.S. shipments: Indonesia.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Share of quantity (percent)		
U.S. shipments: Indonesia.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Share of value (percent)		
U.S. shipments: Indonesia.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***

Table continued on next page.

Table E-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of full and partial wind towers, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
U.S. shipments: Korea.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Value (1,000 dollars)		
U.S. shipments: Korea.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Unit value (dollars per tower)		
U.S. shipments: Korea.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Share of quantity (percent)		
U.S. shipments: Korea.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Share of value (percent)		
U.S. shipments: Korea.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***

Table continued on next page.

Table E-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of full and partial wind towers, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
U.S. shipments: Vietnam.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Value (1,000 dollars)		
U.S. shipments: Vietnam.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Unit value (dollars per tower)		
U.S. shipments: Vietnam.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Share of quantity (percent)		
U.S. shipments: Vietnam.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Share of value (percent)		
U.S. shipments: Vietnam.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***

Table continued on next page.

Table E-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of full and partial wind towers, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
U.S. shipments: Subject sources.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	993	971	1581
	Value (1,000 dollars)		
U.S. shipments: Subject sources.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	261,474	239,515	496,489
	Unit value (dollars per tower)		
U.S. shipments: Subject sources.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	263,317	246,668	314,035
	Share of quantity (percent)		
U.S. shipments: Subject sources.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	100.0	100.0	100.0
	Share of value (percent)		
U.S. shipments: Subject sources.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	100.0	100.0	100.0

Table continued on next page.

Table E-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of full and partial wind towers, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
U.S. shipments: Nonsubject sources.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Value (1,000 dollars)		
U.S. shipments: Nonsubject sources.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Unit value (dollars per tower)		
U.S. shipments: Nonsubject sources.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Share of quantity (percent)		
U.S. shipments: Nonsubject sources.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Share of value (percent)		
U.S. shipments: Nonsubject sources.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***

Table continued on next page.

Table E-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of full and partial wind towers, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
U.S. shipments: All import sources.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Value (1,000 dollars)		
U.S. shipments: All import sources.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Unit value (dollars per tower)		
U.S. shipments: All import sources.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Share of quantity (percent)		
U.S. shipments: All import sources.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***
	Share of value (percent)		
U.S. shipments: All import sources.-- Sold as full tower	***	***	***
Sold as partial tower	***	***	***
Both full towers and sections	***	***	***

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

APPENDIX F

U.S. PRODUCERS' AND U.S. IMPORTERS' U.S. SHIPMENTS BY HEIGHT

U.S. producers' and U.S. importers U.S. shipments by height

Table F-1 presents U.S. producers' and U.S. importers' shipments by height.[1] The overwhelming majority of U.S. producers' and U.S. importers U.S. shipments of wind towers from subject sources were reported to measure from 80 to 89.9 meters and 90-99.9 meters during 2017-19. Nearly all of U.S. producers' U.S. shipments of wind towers were between 80 meters and 109.9 meters, with a small number of U.S. producers' wind tower shipments with a reported height of between 110 and 119.9 meters. Shipments of wind towers below 80 meters were present at the beginning of the period in 2017, but decreased during 2017-19.

U.S. importers reported shipments of wind towers from Canada in *** of the six height categories during 2017 and 2018, with *** percent with a reported height of between 80 and 99.9 meters in 2017, and *** percent with a reported height of between 80 and 99.9 meters in 2018. U.S. importers reported shipments of wind towers from Indonesia in *** of the six total height categories. *** percent of shipments of wind towers from Indonesia were between 80 and 89.9 meters in 2017, and *** percent of shipments of wind towers from Indonesia were between 80 and 89.9 meters in 2018.

U.S. importers of wind towers from Korea reported shipments in *** of the six height categories in 2017, and *** of the six height categories in 2018. *** percent of shipments of wind towers from Korea measuring between 80 and 89.9 meters in 2017, and *** percent of shipments of wind towers from Korea were reported to be between 80 and 89.9 meters in 2018. There were *** of wind towers imported from Vietnam in 2017. U.S. importers of wind towers from Vietnam reported shipments in *** of the six height categories in 2018, with shipments of wind towers below 80 meters accounting for *** percent of these shipments.

U.S. importers of wind towers from nonsubject sources reported shipments in *** of the six height categories in 2017 and 2018, with *** percent of shipments reported to be *** in 2017. The *** share of U.S. shipments of wind towers from nonsubject sources in 2017 and 2018 was of towers between 90 and 99.9 meters.

[1] In the preliminary phase of these investigations, the Commission requested that U.S. producers and U.S. importers report their U.S. shipments by height, beginning with a minimum height of 50 meters. Based on comments submitted on the draft final phase questionnaires, Staff have revised these shipment breakouts to begin with a height of "Below 80 meters". Staff requested that these data be reported by "hub height"—that is, from the base of the tower to the hub of the tower.

Table F-2 presents a comparison of average unit values of annual U.S. shipments of wind towers imported from subject sources and annual U.S. shipments of domestically produced wind towers by tower height and by country during 2017-19. Data include both commercial shipments and internal consumption.[2] Comparing annual U.S. shipments by source across the range of tower heights in ten-meter increments, the average unit values of U.S.-produced wind towers generally were higher than those of imports from each of the subject countries, whether by observations or number of towers. This tendency was particularly pronounced for wind towers of less than 90 meters during 2017-19, and less pronounced for wind towers 90 meters or more in height.

[2] The majority of U.S. importers' U.S. shipments were internally consumed during 2017-19. A small share of U.S. importers' U.S. shipments were commercial shipments, as ***imported wind towers that were then sold to wind tower purchasers.

Table F-1
Wind towers: U.S. producers' and U.S. importers' shipments of wind towers by height, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
U.S. shipments: U.S. producers 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	2,666	2,698	2,964
	Value (1,000 dollars)		
U.S. shipments: U.S. producers 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	843,526	858,928	995,331
	Unit value (dollars per tower)		
U.S. shipments: U.S. producers 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	316,401	318,357	335,807

Table continued on next page.

Table F-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of wind towers by height, 2017-19

Item	Calendar year		
	2017	2018	2019
	Share of quantity (percent)		
U.S. shipments: U.S. producers 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	100.0	100.0	100.0
	Share of value (percent)		
U.S. shipments: U.S. producers 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	100.0	100.0	100.0

Table continued on next page.

Table F-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of wind towers by height, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
U.S. shipments: Canada			
80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***
	Value (1,000 dollars)		
U.S. shipments: Canada			
80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***
	Unit value (dollars per tower)		
U.S. shipments: Canada			
80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***

Table continued on next page.

Table F-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of wind towers by height, 2017-19

Item	Calendar year		
	2017	2018	2019
	Share of quantity (percent)		
U.S. shipments: Canada			
80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***
	Share of value (percent)		
U.S. shipments: Canada			
80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***

Table continued on next page.

Table F-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of wind towers by height, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
U.S. shipments: Indonesia			
80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***
	Value (1,000 dollars)		
U.S. shipments: Indonesia			
80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***
	Unit value (dollars per tower)		
U.S. shipments: Indonesia			
80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***

Table continued on next page.

Table F-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of wind towers by height, 2017-19

Item	Calendar year		
	2017	2018	2019
	Share of quantity (percent)		
U.S. shipments: Indonesia			
80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***
	Share of value (percent)		
U.S. shipments: Indonesia			
80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***

Table continued on next page.

Table F-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of wind towers by height, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
U.S. shipments: Korea			
80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***
	Value (1,000 dollars)		
U.S. shipments: Korea			
80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***
	Unit value (dollars per tower)		
U.S. shipments: Korea			
80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***

Table continued on next page.

Table F-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of wind towers by height, 2017-19

Item	Calendar year		
	2017	2018	2019
	Share of quantity (percent)		
U.S. shipments: Korea			
80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***
	Share of value (percent)		
U.S. shipments: Korea			
80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***

Table continued on next page.

Table F-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of wind towers by height, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
U.S. shipments: Vietnam			
80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***
	Value (1,000 dollars)		
U.S. shipments: Vietnam			
80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***
	Unit value (dollars per tower)		
U.S. shipments: Vietnam			
80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***

Table continued on next page.

Table F-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of wind towers by height, 2017-19

Item	Calendar year		
	2017	2018	2019
	Share of quantity (percent)		
U.S. shipments: Vietnam			
80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***
	Share of value (percent)		
U.S. shipments: Vietnam			
80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***

Table continued on next page.

Table F-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of wind towers by height, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
U.S. shipments: Subject sources 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	993	971	1,581
	Value (1,000 dollars)		
U.S. shipments: Subject sources 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	261,474	239,515	496,489
	Unit value (dollars per tower)		
U.S. shipments: Subject sources 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	263,317	246,668	314,035

Table continued on next page.

Table F-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of wind towers by height, 2017-19

Item	Calendar year		
	2017	2018	2019
	Share of quantity (percent)		
U.S. shipments: Subject sources 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	100.0	100.0	100.0
	Share of value (percent)		
U.S. shipments: Subject sources 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	100.0	100.0	100.0

Table continued on next page.

Table F-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of wind towers by height, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
U.S. shipments: Nonsubject sources 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***
	Value (1,000 dollars)		
U.S. shipments: Nonsubject sources 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***
	Unit value (dollars per tower)		
U.S. shipments: Nonsubject sources 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***

Table continued on next page.

Table F-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of wind towers by height, 2017-19

Item	Calendar year		
	2017	2018	2019
	Share of quantity (percent)		
U.S. shipments: Nonsubject sources 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***
	Share of value (percent)		
U.S. shipments: Nonsubject sources 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***

Table continued on next page.

Table F-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of wind towers by height, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
U.S. shipments: All import sources 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***
	Value (1,000 dollars)		
U.S. shipments: All import sources 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***
	Unit value (dollars per tower)		
U.S. shipments: All import sources 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***

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Table F-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of wind towers by height, 2017-19

Item	Calendar year		
	2017	2018	2019
	Share of quantity (percent)		
U.S. shipments: All import sources 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***
	Share of value (percent)		
U.S. shipments: All import sources 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***

Table continued on next page.

Table F-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of wind towers by height, 2017-19

Item	Calendar year		
	2017	2018	2019
	Quantity (towers)		
U.S. shipments: U.S. producers and U.S importers 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***
	Value (1,000 dollars)		
U.S. shipments: U.S. producers and U.S importers 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***
	Unit value (dollars per tower)		
U.S. shipments: U.S. producers and U.S importers 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***

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Table F-1--Continued
Wind towers: U.S. producers' and U.S. importers' shipments of wind towers by height, 2017-19

Item	Calendar year		
	2017	2018	2019
	Share of quantity (percent)		
U.S. shipments: U.S. producers and U.S importers 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***
	Share of value (percent)		
U.S. shipments: U.S. producers and U.S importers 80 feet and below	***	***	***
80 to 89.9 feet	***	***	***
90 to 99.9 feet	***	***	***
100 to 109.9 feet	***	***	***
110 to 119.9 feet	***	***	***
120 feet and above	***	***	***
All heights	***	***	***

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

Table F-2

Wind towers: Comparison of the number of instances in which the average unit values (AUVs) of annual U.S. shipments of subject imports were lower/higher than the AUVs of annual U.S. shipments of domestically produced wind towers, the average differences, and the range of differences, by tower height category and by country, 2017-19

Product / source	Lower AUVs				
	Number of observations	Quantity (units)	Average differences (percent)	Range of differences (percent)	
				Min	Max
80 meters and below	***	***	***	***	***
80 to 89.9 meters	***	***	***	***	***
90 to 99.9 meters	***	***	***	***	***
100 to 109.9 meters	***	***	***	***	***
110 to 119.9 meters	***	***	***	***	***
120 meters and above	***	***	***	***	***
Total, lower AUVs	***	***	***	***	***
Canada	***	***	***	***	***
Indonesia	***	***	***	***	***
Korea	***	***	***	***	***
Vietnam	***	***	***	***	***
Total, lower AUVs	***	***	***	***	***
Product / source	**(Higher AUVs)**				
	Number of observations	Quantity (units)	Average differences (percent)	Range of differences (percent)	
				Min	Max
80 meters and below	***	***	***	***	***
80 to 89.9 meters	***	***	***	***	***
90 to 99.9 meters	***	***	***	***	***
100 to 109.9 meters	***	***	***	***	***
110 to 119.9 meters	***	***	***	***	***
120 meters and above	***	***	***	***	***
Total, higher AUVs	***	***	***	***	***
Canada	***	***	***	***	***
Indonesia	***	***	***	***	***
Korea	***	***	***	***	***
Vietnam	***	***	***	***	***
Total, higher AUVs	***	***	***	***	***

Note.--Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Commercial U.S. shipments are defined in questionnaires as shipments made within the United States as a result of an arm's length commercial transaction in the ordinary course of business. Commission questionnaires direct that commercial U.S. shipments are to be reported as net values (i.e., gross sales values less all discounts, allowances, rebates, prepaid freight, and the value of returned goods) f.o.b., U.S. point of shipment. Internal consumption is defined in questionnaires to be product consumed internally by a firm following production or importation, and is to be reported as fair market value.

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