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

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

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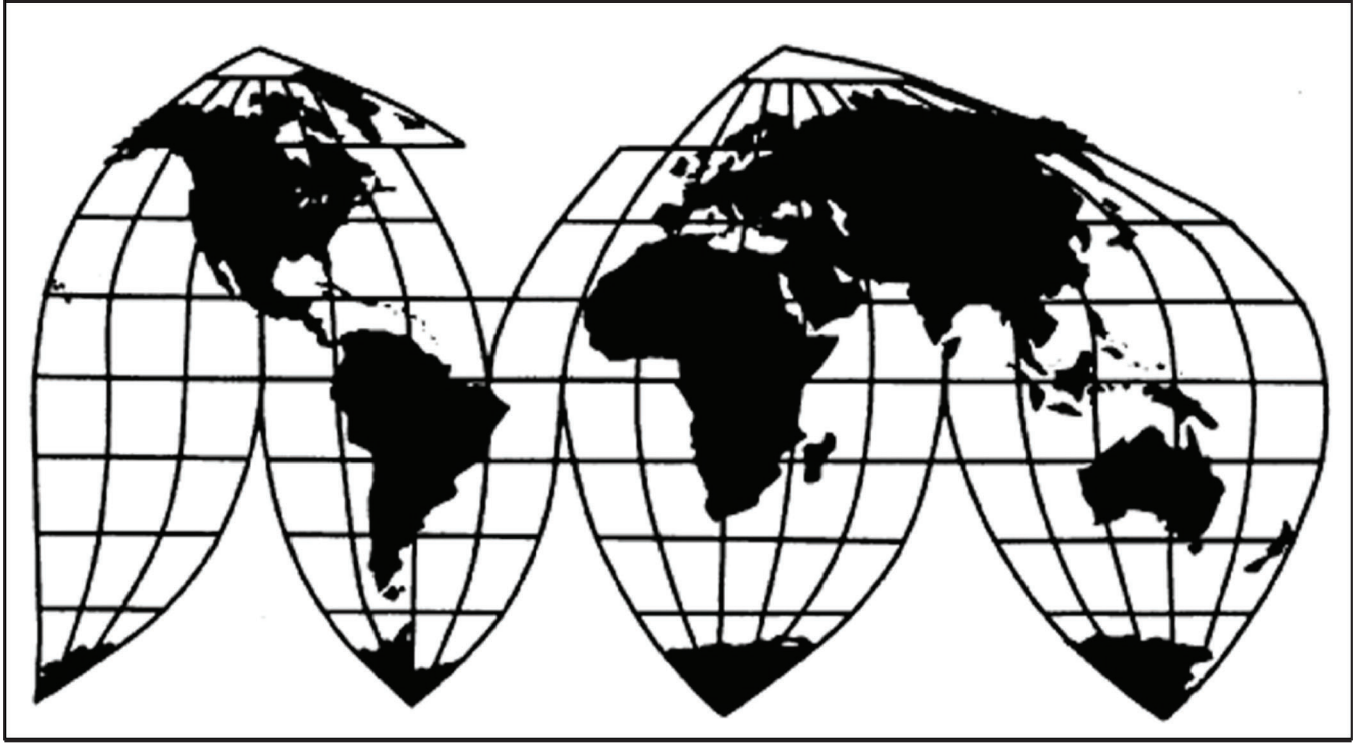
U.S. International Trade Commission



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U.S. International Trade Commission

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Note.—Information that would reveal confidential operations of individual concerns may not be published.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 (Preliminary)
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 there is a reasonable indication 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, provided for in subheadings 7308.20.00 and 8502.31.00 of the Harmonized Tariff Schedule of the United States, that are alleged to be sold in the United States at less than fair value ("LTFV") and to be subsidized by the governments of Canada, Indonesia, and Vietnam.[2] [3]

COMMENCEMENT OF FINAL PHASE INVESTIGATIONS

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

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

[2] *Utility Scale Wind Towers from Canada, Indonesia, the Republic of Korea, and the Socialist Republic of Vietnam: Initiation of Less-Than-Fair-Value Investigations*, 84 FR 37992 (August 5, 2019). See also *Utility Scale Wind Towers from Canada, Indonesia, and the Socialist Republic of Vietnam: Initiation of Countervailing Duty Investigations*, 84 FR 38216 (August 6, 2019).

[3] Commissioners Broadbent and Williamson are not participating in these investigations.

BACKGROUND

On July 9, 2019, the Wind Tower Trade Coalition (Arcosa Wind Towers, Inc. (Dallas, Texas) and Broadwind Towers, Inc. (Manitowoc, Wisconsin)) filed petitions with the Commission and Commerce, alleging that an industry in the United States is materially injured or threatened with material injury by reason of subsidized imports of wind towers from Canada, Indonesia, and Vietnam, and LTFV imports of wind towers from Canada, Indonesia, Korea, and Vietnam. Accordingly, effective July 9, 2019, the Commission, pursuant to sections 703(a) and 733(a) of the Act (19 U.S.C. 1671b(a) and 1673b(a)), instituted countervailing duty investigation Nos. 701-TA-627-629 and antidumping duty investigation Nos. 731-TA-1458-1461 (Preliminary).

Notice of the institution of the Commission's investigations and of a public conference to be held in connection therewith was given by posting copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the *Federal Register* of July 15, 2019 (84 FR 33784). The conference was held in Washington, DC, on July 30, 2019, and all persons who requested the opportunity were permitted to appear in person or by counsel.

Views of the Commission

Based on the record in the preliminary phase of these investigations, we determine that there is a reasonable indication that an industry in the United States is materially injured by reason of imports of utility scale wind towers ("wind towers") from Canada, Indonesia, Korea, and Vietnam that are allegedly sold in the United States at less than fair value and that are allegedly subsidized by the governments of Canada, Indonesia, and Vietnam.[1]

I. The Legal Standard for Preliminary Determinations

The legal standard for preliminary antidumping and countervailing duty determinations requires the Commission to determine, based upon the information available at the time of the preliminary determinations, whether there is a reasonable indication that a domestic industry is materially injured or threatened with material injury, or that the establishment of an industry is materially retarded, by reason of the allegedly unfairly traded imports.[2] In applying this standard, the Commission weighs the evidence before it and determines whether "(1) the record as a whole contains clear and convincing evidence that there is no material injury or threat of such injury; and (2) no likelihood exists that contrary evidence will arise in a final investigation."[3]

II. Background

The petitions in these investigations were filed on July 9, 2019 by the Wind Tower Trade Coalition ("Coalition"), which consists of two domestic producers of wind towers.[4] The Coalition appeared at the staff conference with counsel and submitted a postconference brief.

A number of respondent parties participated in these preliminary investigations. Marmen Inc. and Marmen Énergie Inc. ("Marmen Canada"), producers and exporters of wind towers in Canada, and Marmen Energy Co., a domestic producer of wind towers (collectively "Marmen"), appeared at the conference with counsel and submitted a postconference brief. Vestas Towers America, Inc. ("Vestas Towers"), a domestic producer of wind towers, and Vestas – American Wind Technology, Inc. ("Vestas American"), a U.S. importer of subject merchandise

[1] Commissioners Irving A. Williamson and Meredith M. Broadbent did not participate in these determinations. Commissioners Randolph J. Stayin and Amy A. Karpel were not members of the Commission at the time of the vote.

[2] 19 U.S.C. §§ 1671b(a), 1673b(a) (2000); *see also American Lamb Co. v. United States*, 785 F.2d 994, 1001-04 (Fed. Cir. 1986); *Aristech Chem. Corp. v. United States, 2*0 CIT 353, 354-55 (1996). No party argues that the establishment of an industry in the United States is materially retarded by the allegedly unfairly traded imports.

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

[4] The Coalition consists of two domestic producers, Arcosa Wind Towers Inc. ("Arcosa") and Broadwind Towers, Inc. ("Broadwind"). *See* Petition, Vol. I at Exhibit I-1.

(collectively "Vestas"), also appeared at the conference with counsel and submitted a postconference brief. Additionally, the American Wind Energy Association ("AWEA"), a trade association for the U.S. wind industry, appeared at the conference and submitted a postconference brief.[5] General Electric Renewable Energy ("GE"), a purchaser and U.S. importer of subject merchandise, submitted a written statement.

U.S. industry data are based on the questionnaire responses of six firms that accounted for all, or nearly all, of known U.S. wind tower production in 2018.[6] U.S. import data are based on the questionnaire responses of seven importers that accounted for more than *** percent of imports from Canada, nearly all imports from Indonesia, more than *** percent of imports from Korea, and nearly all imports from Vietnam between 2016 and 2018.[7] The Commission received usable responses to its foreign producer questionnaires from two producers of subject merchandise in Canada whose reported exports accounted for all, or nearly all, of U.S. imports of wind towers from Canada in 2018,[8] one producer of subject merchandise in Indonesia whose reported exports accounted for all, or nearly all, of U.S. imports from Indonesia in 2018,[9] two producers of subject merchandise in Korea whose reported exports accounted for the vast majority of all U.S. imports from Korea in 2018,[10] and one producer of subject merchandise in Vietnam whose reported exports accounted for all, or nearly all, of U.S. imports of wind towers from Vietnam in 2018.[11]

III. Domestic Like Product

In determining whether there is a reasonable indication that an industry in the United States is materially injured or threatened with material injury by reason of imports of the subject merchandise, the Commission first defines the "domestic like product" and the "industry."[12] 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."[13] 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."[14]

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[5] The AWEA's membership includes "global and domestic leaders in wind power development, and turbine and component manufacturer{s}, including wind towers and component and service suppliers." Conference Tr. at 105 (Farrell).

[6] Confidential Report, Memorandum INV-RR-077 (Aug. 16, 2019) ("CR") at I-5, Public Report ("PR") at I-4.

[7] CR at I-5, IV-1, PR at I-4, IV-1.

[8] CR at VII-3, PR at VII-3.

[9] CR at VII-9, PR at VII-7.

[10] CR at VII-13, PR at VII-11.

[11] CR at VII-18, PR at VII-15.

[12] 19 U.S.C. § 1677(4)(A).

[13] 19 U.S.C. § 1677(4)(A).

[14] 19 U.S.C. § 1677(10).

The decision regarding the appropriate domestic like product(s) in an investigation is a factual determination, and the Commission has applied the statutory standard of "like" or "most similar in characteristics and uses" on a case-by-case basis.[15] No single factor is dispositive, and the Commission may consider other factors it deems relevant based on the facts of a particular investigation.[16] The Commission looks for clear dividing lines among possible like products and disregards minor variations.[17] Although 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,[18] the Commission determines what domestic product is like the imported articles Commerce has identified.[19] The Commission may, where appropriate, include domestic articles in the domestic like product in addition to those described in the scope.[20]

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

> . . . {C}ertain wind towers, whether or not tapered, and sections thereof. Certain wind towers support the nacelle and rotor blades in a wind turbine with a

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

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

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

[18] *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).

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

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

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 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 these investigations 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 investigations is dispositive.[21]

[21] *Utility Scale Wind Towers from Canada, Indonesia, the Republic of Korea, and the Socialist Republic of Vietnam*, 84 Fed. Reg. 37992 (Aug. 5, 2019) (initiation of less than fair value investigations);

Wind towers are large tubular steel towers that are part of wind turbines.[22] Wind turbines convert the mechanical energy of wind to electrical energy and are comprised of three main components – the nacelle, rotor, and tower; only the tower is subject to these investigations.[23] The nacelle houses the wind turbine's main power generation components (the gearbox, generator, and other components), while the rotor typically consists of three blades and the hub. The nacelle sits on top of the wind tower.[24] 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 in excess of 100 kilowatts.[25] These towers are known in the industry as "utility scale" wind towers.[26]

A. Arguments of the Parties

The Coalition argues that the Commission should find a single domestic like product consisting of all wind towers, coextensive with the scope of the investigations.[27] It asserts that this would be consistent with the Commission's treatment of the product in the prior investigations and reviews concerning wind towers from China and Vietnam, in which the Commission found that, notwithstanding that wind towers are designed to each wind turbine manufacturer's (*i.e.*, original equipment manufacturer's ("OEM")) specifications, all wind towers comprised a single domestic like product.[28] No respondent party contests the Coalition's proposed definition of the domestic like product for purposes of the preliminary investigations.[29]

B. Analysis

Based on the record, we define a single domestic like product consisting of all wind towers, coextensive with the scope of these investigations.

Physical Characteristics and Uses. The record indicates that all wind towers share the same basic physical characteristics. Wind towers are tubular steel towers that contain interior components such as doors, ladders, flooring, cables and wiring, lights, and/or other accessories.[30] Wind towers are produced from cut-to-length steel plate and steel flanges and

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Utility Scale Wind Towers from Canada, Indonesia, and the Socialist Republic of Vietnam, 84 Fed. Reg. 38216 (Aug. 6, 2019) (initiation of countervailing duty investigations).

[22] CR at I-18-19, PR at I-13-14.

[23] CR at I-18, PR at I-13.

[24] CR at I-18, PR at I-13.

[25] CR at I-19, PR at I-14.

[26] CR at I-19, PR at I-14.

[27] Petition, Vol. I at 17-18; Coalition Postconf. Br. at 2.

[28] Petition, Vol. I at 18; Coalition Postconf. Br. at 2 n.4.

[29] Marmen Revised Postconf. Br. at 4; *see generally* Vestas Postconf. Br. and AWEA Postconf. Br.

[30] CR at I-18-19, PR at I-13-14; Petition, Vol. I at 7-8, 18; Conference Tr. at 17-22 (Janda).

are designed to each OEM's unique specifications.[31] Notwithstanding any differences in OEM specifications, all wind towers are used to support the nacelle and rotor blades in wind turbines for the generation of electricity.[32]

Manufacturing Facilities, Production Processes and Employees. The Coalition states that domestic producers produce wind towers in dedicated facilities using dedicated employees.[33] Wind towers also share the same manufacturing process utilizing cut-to-length steel plate that is cut and bent to shape for welding together into "cans," and then into tower sections. Although tower sections subsequently undergo a corrosion protection process that may vary by tower design, all processes generally involve one or more coats of paint on the tower segment interior and two or more coats of paint on the exterior. Once the paint cures, internal components are installed, and the completed tower is then transferred to a storage area for pick-up by the OEM customer.[34] After the tower sections are transported to the wind project site, they are assembled by bolting the flanged ends of the tower sections together.[35]

Channels of Distribution. All domestically produced wind towers are sold to OEMs for incorporation into wind turbines.[36]

Interchangeability. Wind towers are built to each OEM's specifications.[37] OEM specifications may vary based on differences in height and weight of the wind tower and/or the internal components attached to the tower.[38] Although there is limited interchangeability between wind towers built to different specifications, those produced to the same specifications are generally interchangeable.[39]

Producer and Customer Perceptions. The record indicates that customers and producers perceive all wind towers to be a single distinct product category.[40]

Price. Wind towers are built to each OEM's specifications and may be priced differently depending on differences in specifications. The record indicates that same model wind towers produced to the same OEM specifications are comparably priced.[41]

Conclusion. The record indicates that all wind towers share common physical characteristics and uses; channels of distribution; manufacturing facilities, production processes, and employees; and producer and customer perceptions. Although there is a lack of interchangeability and some differences in price among wind towers produced to different

[31] CR at I-24-25, PR at I-18-20; Petition, Vol. I at 7-8, 18; Conference Tr. at 17-22 (Janda).
[32] CR at I-18, PR at I-13; Petition, Vol. I at 7-8, 18; Conference Tr. at 17-22 (Janda).
[33] Petition, Vol. I at 18.
[34] CR at I-24-27, PR at I-18-20; Conference Tr. at 17-22 (Janda).
[35] CR at I-28-29, PR at I-20-21.
[36] CR at II-3, PR at II-2; Petition, Vol. I at 18.
[37] Petition, Vol I. at 18.
[38] Conference Tr. at 63-64 (Cole).
[39] CR at I-24, PR at I-18; Conference Tr. at 56 (Pickard).
[40] Petition, Vol. I at 18.
[41] CR/PR at Table V-2 and Tables V-4-10.

OEM specifications, the record does not indicate, nor has any party argued, that any clear dividing line exists among wind towers built to particular designs. In light of the foregoing, and in the absence of any contrary argument, we find that all wind towers comprise a single domestic like product.

IV. Domestic Industry and Related Parties

The domestic industry is defined as the domestic "producers as a whole of a domestic like product, or those producers whose collective output of a domestic like product constitutes a major proportion of the total domestic production of the product."[42] 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 or which are themselves importers.[43] Exclusion of such a producer is within the Commission's discretion based upon the facts presented in each investigation.[44]

The record indicates that two domestic producers, Vestas Towers and Marmen Energy, meet the statutory definition of related parties. Vestas Towers is a related party because it is affiliated with a U.S. importer of subject merchandise.[45] Marmen Energy is a related party because it is affiliated with a Canadian producer and exporter of subject merchandise to the

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[42] 19 U.S.C. § 1677(4)(A).

[43] *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).

[44] 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.

[45] Vestas Towers shares the same parent company as Vestas American, a U.S. importer of subject merchandise. Vestas U.S. Producer Questionnaire Response at I-5-6; Vestas U.S. Importer Questionnaire Response at I-3; *see also* CR/PR at Tables III-1 and IV-1; Conference Tr. at 110-11 (Chase).

U.S. market.[46] The Coalition contends that it is appropriate to exclude both firms from the definition of the domestic industry as related parties because their relationships provided them access to subject imports and that they, therefore, derived a significant benefit from these relationships.[47] Marmen disagrees that appropriate circumstances exist to exclude Vestas Towers and Marmen Energy from the domestic industry because the primary interest of each firm lies with domestic production and their inclusion would not skew the domestic industry's financial data.[48]

Vestas Towers. Vestas Towers is the *** U.S. producer of wind towers, accounting for *** percent of reported U.S. production of wind towers in 2018.[49] During the period of investigation, its sister company Vestas American imported subject merchandise from *** (*** towers in 2016, *** towers in 2017, and *** towers in 2018). *** also imported subject merchandise from *** (*** towers in 2018 and *** towers in interim 2019).[50] Vestas Towers ***.[51]

We find that appropriate circumstances do not exist to exclude Vestas Towers from the domestic industry as a related party. Its U.S. production was considerably larger than its affiliate firm's subject imports, underscoring that its principal interest was in domestic production. Specifically, Vestas Towers' U.S. production was *** towers in 2016, *** towers in 2017, and *** towers in 2018. Its production was higher in interim 2019 at *** towers than in interim 2018 at *** towers.[52] Its affiliate firm's combined subject imports from *** were equivalent to *** percent of Vestas Towers' domestic production in 2016, *** percent of its domestic production in 2017, *** percent of its domestic production in 2018, and *** percent of its domestic production in interim 2019.[53] Vestas Towers states that its affiliate firm imported subject merchandise ***.[54] Vestas Towers also reports significant capital expenditures during the period of investigation totaling $*** in 2016, $*** in 2017, and $*** in

[46] Marmen Energy shares the same parent company as Marmen Canada, a producer and exporter of subject merchandise. Marmen U.S. Producer Questionnaire Response at I-5-6; Marmen Foreign Producer Questionnaire Response at I-3; see also Conference Tr. at 122, 126 (Pellerin), & 130 (Campbell).

[47] Petition, Vol. I at 19-20; Coalition Postconf. Br. at 3-4, Exhibit 1 pp.29-33.

[48] Marmen Revised Postconf. Br. at 5-8.

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

[50] CR/PR at Table III-8.

[51] Vestas U.S. Producer Questionnaire Response at I-4.

[52] CR/PR at Table III-8.

[53] CR/PR at Table III-8.

[54] CR/PR at Table III-8. Vestas Towers' capacity utilization was *** percent in 2016, *** percent in 2017, and *** percent in 2018. It was higher in interim 2019 at *** percent than in interim 2018 at *** percent. CR at Table III-4.

2018.[55] It ***.[56] This evidence indicates that the primary interest of Vestas Towers lies in its domestic production operations.[57]

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 2018.[58] During the period of investigation, its sister company Marmen Canada produced and exported subject merchandise from Canada to the United States.[59] Marmen Energy ***.[60]

We find that appropriate circumstances do not exist to exclude Marmen Energy from the domestic industry as a related party. Marmen Energy did not directly import or purchase subject merchandise during the period of investigation. Although it produced "hybrid" towers for which it supplied base and middle section of towers and Marmen Canada supplied top sections of those towers, Marmen Canada's exports did not displace Marmen Energy's domestic production.[61] Indeed, Marmen Energy operated at *** percent capacity utilization throughout the period of investigation.[62] Although the record indicates that Marmen Energy's capacity and production declined from *** towers in 2016 to *** towers in 2017 and *** towers in 2018, it explained that this ***.[63] Marmen Energy also made significant capital expenditures to its domestic production operations. In 2016, it ***.[64] It continued to make capital expenditures in these areas totaling $*** in 2017 and $*** in 2018.[65] Consequently, we find that its primary interest lies in its domestic production operations.[66]

Accordingly, we define the domestic industry to consist of all domestic producers of the domestic like product.

[55] Vestas Towers U.S. Producer Questionnaire Response at III-13.

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

[57] Vestas Towers' operating income margin was *** percent in 2016, *** percent in 2017, and *** percent in 2018; it *** the industry average in each year of the period of investigation, except in 2017. CR/PR at Table VI-5.

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

[59] CR/PR at Table III-2; Marmen Canada Foreign Producer/Exporter Questionnaire Response at II-8.

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

[61] Conference Tr. at 156-57 (Pellerin); Marmen Revised Postconf. Br. at 6.

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

[63] Marmen Energy U.S. Producer Questionnaire Response at II-3c.

[64] Marmen Energy U.S. Producer Questionnaire Response at II-2, III-13.

[65] Marmen Energy U.S. Producer Questionnaire Response at III-13.

[66] Marmen Energy's operating income margin was *** percent in 2016, *** percent in 2017, and *** percent in 2018; it *** the industry average in each year of the period of investigation, except in 2018. CR/PR at Table VI-5.

V. Cumulation[67]

For purposes of evaluating the volume and effects for a determination of reasonable indication 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

[67] Pursuant to Section 771(24) of the Tariff Act, imports from a subject country of merchandise corresponding to a domestic like product that account for less than 3 percent of all such merchandise imported into the United States during the most recent 12 months for which data are available preceding the filing of the petition shall be deemed negligible. 19 U.S.C. §§ 1671b(a), 1673b(a), 1677(24)(A)(i), 1677(24)(B); *see also* 15 C.F.R. § 2013.1 (developing countries for purposes of 19 U.S.C. § 1677(36)). The statute further provides that subject imports from a single country which comprise less than 3 percent of total such imports of the product may not be considered negligible if there are several countries subject to investigation with negligible imports and the sum of such imports from all those countries collectively accounts for more than 7 percent of the volume of all such merchandise imported into the United States. 19 U.S.C. § 1677(24)(A)(ii). In the case of countervailing duty investigations involving developing countries (as designated by the United States Trade Representative), the statute indicates that the negligibility limits are 4 percent and 9 percent, rather than 3 percent and 7 percent. 19 U.S.C. § 1677(24)(B). The United States Trade Representative ("USTR") has designated Indonesia to be a developing country subject to the 4 percent negligibility threshold for countervailing duty investigations. 15 C.F.R. § 2013.1 (1-1-16 edition).

Imports from each of the four subject countries are clearly above the statutory negligibility threshold. Specifically, questionnaire response data indicate that from 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, 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. Because imports from each subject country are clearly above negligible levels, we find that subject imports from Canada, Indonesia, Korea, and Vietnam are not negligible for purposes of both the antidumping duty investigations and countervailing duty investigations.

(4) whether the subject imports are simultaneously present in the market.[68]

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.[69] Only a "reasonable overlap" of competition is required.[70]

The Coalition argues that the Commission should cumulatively assess imports from all subject countries as it did in the prior investigations and reviews concerning wind towers from China and Vietnam.[71] It observes that the petitions for all four countries were filed simultaneously on the same day and contends that a reasonable overlap in competition exists among wind towers produced in the subject countries and between each subject country and the United States, and that cumulation is therefore mandatory.[72] Specifically, the Coalition claims that when built to purchaser specifications, subject imports from all sources are fungible with each other and with domestically produced wind towers.[73] Additionally, the Coalition asserts that domestically produced wind towers and subject imports from all sources are marketed and sold in the same geographic markets using the same channels of distribution (OEMs) and have been simultaneously present in the U.S. market for most of the period of investigation.[74]

Marmen argues that the Commission should not cumulate subject imports from Canada with subject imports from Indonesia, Korea, and Vietnam.[75] It asserts that Marmen Canada produces two wind tower products for export to the United States: (1) top sections of wind towers and (2) complete wind towers.[76] For the top sections of towers, Marmen claims that competition is nonexistent between subject imports from Canada and imports from the other subject sources because Marmen Canada is the only subject producer to export top sections (as

[68] *See Certain Cast-Iron Pipe Fittings from Brazil, the Republic of Korea, and Taiwan*, Inv. Nos. 731-TA-278-80 (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).

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

[70] 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*, 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.").

[71] Petition, Vol. I at 26-27; Coalition Postconf. Br. at 4-9.

[72] Petition, Vol. I at 26-27; Coalition Postconf. Br. at 4-9, Exhibit 1 pp.40-55.

[73] Petition, Vol. I at 27-28; Coalition Postconf. Br. at 5-6, Exhibit 1 pp.42-48.

[74] Petition, Vol. I at 28-30; Coalition Postconf. Br. at 7-9, Exhibit 1 pp.48-53.

[75] Marmen Revised Postconf. Br. at 8-19.

[76] Marmen Revised Postconf. Br. at 9-10.

opposed to complete towers) to the U.S. market.[77] According to Marmen, top sections are not "functionally interchangeable" at the time of importation with the complete towers imported from Indonesia, Korea, and Vietnam, and therefore are not fungible with imports from the other subject sources for purposes of cumulation.[78] For complete towers, Marmen argues that competition between subject imports from Canada and imports from the other subject sources is negligible because shipments of wind towers from Canada are concentrated in different geographic regions of the United States.[79] It claims that due to high transportation costs, Marmen Canada is able to supply complete wind towers for delivery only to the Northeast and Great Lakes regions of the United States and rarely experiences competition from subject imports from Asia, which predominantly enter the United States at ports located on the West and Gulf Coasts.[80]

The statutory threshold for cumulation is satisfied because the Coalition filed the antidumping/countervailing duty petitions with respect to all sources of subject imports on the same day, July 9, 2019.[81] As discussed below, we find a reasonable overlap of competition among wind towers produced in Canada, Indonesia, Korea, Vietnam, and the United States.

Fungibility. In these investigations, the majority of U.S. producers and importers reported that the domestic like product and wind towers from Canada, Indonesia, Korea, and Vietnam were always interchangeable in all comparisons.[82] Notably, the majority of both domestic producers (4 out of 6) and importers (4 out of 5) reported subject imports from Canada were always interchangeable with the domestic like product and with wind tower imports from each other subject country.[83] In no instances when comparing the domestic product or wind towers from subject sources did any U.S. producer or importer report that they were never interchangeable.[84]

Moreover, there is substantial product overlap for shipments of the domestic like product and subject imports, and between wind tower imports from each subject country. In 2018, wind towers with a height of 90 or more meters accounted for the majority of U.S. shipments of the domestic like product, the largest shares of U.S. shipments of subject imports from Canada and Korea, *** of U.S. shipments of subject imports from Vietnam, and a substantial share of U.S. shipments of subject imports from Indonesia.[85]

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[77] Marmen Revised Postconf. Br. at 10-13. Marmen explains that these top sections of towers from Canada are sold together with middle and base sections of towers produced by Marmen Energy and are invoiced by Marmen Energy to its customer as "hybrid" towers. *See id.* at 11-12.

[78] Marmen Revised Postconf. Br. at 11-13.

[79] Marmen Revised Postconf. Br. at 14-18.

[80] Marmen Revised Postconf. Br. at 14-18. According to Marmen, inland transportation of wind towers by truck is uneconomical beyond 500 miles. *See id.* at 15.

[81] None of the statutory exceptions to cumulation applies.

[82] CR/PR at Table II-7.

[83] CR/PR at Table II-7.

[84] CR/PR at Table II-7.

[85] CR/PR at Table IV-4. Specifically, in 2018, wind towers with a height of 90 or more meters accounted for *** percent of U.S. shipments of the domestic like product, *** percent of U.S. shipments of subject imports from Canada, *** percent of U.S. shipments of subject imports from Indonesia, ***

Marmen argues that top sections of wind towers imported from Canada are not fungible with the domestic like product and imports from the other subject countries. The record indicates that there were substantial quantities of complete wind towers imported from Canada that competed with complete wind towers from domestic and each of the other subject sources.[86] In light of this overlap, we believe the record indicates a reasonable level of fungibility between and among the domestic like product and wind towers from each subject source.

Channels of Distribution. Both domestic producers and importers reported shipments of wind towers only to end users.[87]

Geographic Overlap. U.S. producers report that in 2018, *** percent of their shipments were to the Midwest region, *** percent were to the Central Southwest region, and *** percent were to the Mountain region.[88] Importers of wind towers from Canada, Indonesia, and Korea also reported shipments to these three regions that year.[89] Although importers of wind towers from Vietnam reported shipments *** to the Southeast and Pacific Coast regions, official import statistics show that imports of wind towers from all four subject countries entered the United States from the Southern border in 2018.[90] While the border of entry does not dictate the ultimate destination for the product, these data evidence a reasonable overlap in sales or offers to sell in the same geographic markets, particularly in light of the fact that shipping costs generally account for a substantial share of the total delivered cost of wind towers.[91] [92]

Simultaneous Presence in Market. Import data show that the domestic like product and wind towers imported from all subject countries have been present in the U.S. market in 2016, 2018, and interim 2019.[93]

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percent of U.S. shipments of subject imports from Korea, and *** percent of U.S. shipments of subject imports from Vietnam. *See id.*

[86] CR/PR at Table IV-10; Marmen Revised Postconf. Br. at Exhibit 7. In any final phase of these investigations, we will obtain further information on imports/shipments of complete wind towers and tower sections.

[87] CR at II-3, PR at II-2.

[88] CR/PR at Table IV-6.

[89] CR/PR at Table IV-6.

[90] CR/PR at Tables IV-5-6. Specifically, 15.3 percent of wind towers from Canada, 100 percent of wind towers from Indonesia, 54.9 percent of wind towers from Korea, and 100 percent of wind towers from Vietnam entered through the South border. *See id.*

[91] CR at V-5, PR at V-3. We further note that *** reported ***. *** Importer Questionnaire Response at III-2b. *** also states that ***. CR at V-11, PR at V-6. *** are two of *** that account for virtually all purchases and imports of wind towers in the United States. CR at II-2, PR at II-2.

[92] Marmen argues that competition between complete towers from Canada, which it purportedly ships to the Northeast and Great Lakes regions of the United States, and subject imports from Asia, which it contends predominantly enter the United States at ports located in the West and Gulf Coast regions, is limited. Even under Marmen's analysis of the data, however, it concedes that it shipped *** during the period of investigation. Marmen Revised Postconf. Br. at Exhibit 7.

[93] CR/PR at Table IV-7. Subject imports from Canada were present in all 42 months of the period between January 2016 and June 2019. Subject imports from Indonesia were present in 26 of 42 months.

Conclusion. In sum, the record in the preliminary phase of these investigations indicates that subject imports from each subject country are fungible with the domestic like product and each other, sold in the same channels of distribution and in similar geographic markets, and 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 and between imports from each subject country.

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

A. Legal Standard

In the preliminary phase of antidumping and countervailing duty investigations, the Commission determines whether there is a reasonable indication that an industry in the United States is materially injured or threatened with material injury by reason of the imports under investigation.[94] In making this determination, the Commission must consider the volume of subject imports, their effect on prices for the domestic like product, and their impact on domestic producers of the domestic like product, but only in the context of U.S. production operations.[95] The statute defines "material injury" as "harm which is not inconsequential, immaterial, or unimportant."[96] In assessing whether there is a reasonable indication that the domestic industry is materially injured by reason of subject imports, we consider all relevant economic factors that bear on the state of the industry in the United States.[97] No single factor is dispositive, and all relevant factors are considered "within the context of the business cycle and conditions of competition that are distinctive to the affected industry."[98]

Although the statute requires the Commission to determine whether there is a reasonable indication that the domestic industry is "materially injured or threatened with material injury by reason of" unfairly traded imports,[99] it does not define the phrase "by reason of," indicating that this aspect of the injury analysis is left to the Commission's reasonable

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Subject imports from Korea were present in 32 of 42 months. Subject imports from Vietnam were present in 11 of 42 months, mostly after April 2018. *See id.* CS Wind, ***, had been under an existing antidumping duty order until March 2017, when Commerce excluded it from the order following litigation. CR at I-5-7, PR at I-4-6. 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).

[94] 19 U.S.C. §§ 1671b(a), 1673b(a).

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

[96] 19 U.S.C. § 1677(7)(A).

[97] 19 U.S.C. § 1677(7)(C)(iii).

[98] 19 U.S.C. § 1677(7)(C)(iii).

[99] 19 U.S.C. §§ 1671b(a), 1673b(a).

exercise of its discretion.[100] In identifying a causal link, if any, between subject imports and material injury to the domestic industry, the Commission examines the facts of record that relate to the significance of the volume and price effects of the subject imports and any impact of those imports on the condition of the domestic industry. This evaluation under the "by reason of" standard must ensure that subject imports are more than a minimal or tangential cause of injury and that there is a sufficient causal, not merely a temporal, nexus between subject imports and material injury.[101]

In many investigations, there are other economic factors at work, some or all of which may also be having adverse effects on the domestic industry. Such economic factors might include nonsubject imports; changes in technology, demand, or consumer tastes; competition among domestic producers; or management decisions by domestic producers. The legislative history explains that the Commission must examine factors other than subject imports to ensure that it is not attributing injury from other factors to the subject imports, thereby inflating an otherwise tangential cause of injury into one that satisfies the statutory material injury threshold.[102] In performing its examination, however, the Commission need not isolate the injury caused by other factors from injury caused by unfairly traded imports.[103] Nor does

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

[101] 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).

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

[103] SAA at 851-52 ("{T}he Commission need not isolate the injury caused by other factors from injury caused by unfair imports."); *Taiwan Semiconductor Industry Ass'n,* 266 F.3d at 1345 ("{T}he Commission need not isolate the injury caused by other factors from injury caused by unfair imports ... . Rather, the Commission must examine other factors to ensure that it is not attributing injury from other sources to the subject imports." (emphasis in original)); *Asociacion de Productores de Salmon y Trucha*

the "by reason of" standard require that unfairly traded imports be the "principal" cause of injury or contemplate that injury from unfairly traded imports be weighed against other factors, such as nonsubject imports, which may be contributing to overall injury to an industry.[104] It is clear that the existence of injury caused by other factors does not compel a negative determination.[105]

Assessment of whether material injury to the domestic industry is "by reason of" subject imports "does not require the Commission to address the causation issue in any particular way" as long as "the injury to the domestic industry can reasonably be attributed to the subject imports."[106] The Commission ensures that it has "evidence in the record" to "show that the harm occurred 'by reason of' the LTFV imports," and that it is "not attributing injury from other sources to the subject imports." [107] The Federal Circuit has examined and affirmed various Commission methodologies and has disavowed "rigid adherence to a specific formula."[108]

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

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de Chile AG v. United States, 180 F. Supp. 2d 1360, 1375 (Ct. Int'l Trade 2002) ("{t}he Commission is not required to isolate the effects of subject imports from other factors contributing to injury" or make "bright-line distinctions" between the effects of subject imports and other causes.); *see also Softwood Lumber from Canada*, Inv. Nos. 701-TA-414 and 731-TA-928 (Remand), USITC Pub. 3658 at 100-01 (Dec. 2003) (Commission recognized that "{i}f an alleged other factor is found not to have or threaten to have injurious effects to the domestic industry, *i.e*., it is not an 'other causal factor,' then there is nothing to further examine regarding attribution to injury"), *citing Gerald Metals,* 132 F.3d at 722 (the statute "does not suggest that an importer of LTFV goods can escape countervailing duties by finding some tangential or minor cause unrelated to the LTFV goods that contributed to the harmful effects on domestic market prices.").

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

[105] *See Nippon 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.").

[106] *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 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*.

[107] *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.

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

evidence standard.[109] Congress has delegated this factual finding to the Commission because of the agency's institutional expertise in resolving injury issues.[110]

B. Conditions of Competition and the Business Cycle

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

1. Captive Production

We consider the applicability of the statutory captive production provision.[111] We determine that the threshold criterion for application of the captive production provision has been met. In these investigations, transfers to related firms accounted for between *** percent and *** percent of the domestic industry's U.S. shipments of wind towers between 2016 and 2018.[112] Commercial shipments accounted for between *** percent and *** percent of the domestic industry's U.S. shipments in this period.[113] Both the internal consumption and merchant market segments constitute significant portions of the market.

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

[110] *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.").

[111] 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 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.

The SAA indicates that where a domestic like product is transferred internally for the production of another article coming within the definition of the domestic like product, such transfers do not constitute internal transfers for the production of a "downstream article" for purposes of the captive production provision. SAA at 853.

[112] CR/PR at Table III-6. 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, 1364-1368 (Ct. Int'l Trade 2003). Therefore, we calculate internal transfers to include internal consumption and transfers to related firms.

[113] CR/PR at Table III-6.

We also determine that the first statutory criterion has been met. This criterion focuses on whether any of the domestic like product that is transferred internally for further processing is in fact sold on the merchant market.[114] No domestic producers in these investigations reported diverting wind towers that were to be internally consumed to the merchant market.[115]

In applying the second statutory criterion, we generally consider whether the domestic like product is the predominant material input into a downstream product by referring to its share of the raw material cost of the downstream product.[116] In these investigations, wind towers are not a predominant material input of the downstream product in which they are used, wind turbines. Reporting domestic producers indicated that wind towers accounted for between 20 percent and 25 percent of the finished cost of wind turbines.[117]

We conclude that the criteria for application of the captive production provision are not satisfied in these investigations. However, as in the prior investigations involving wind towers, we take into consideration the existence of a significant volume of captive production as a relevant condition of competition and consider the merchant market in our injury analysis.[118]

2. Demand Conditions

Wind towers are exclusively used in wind turbines for electrical power-generation projects.[119] Demand for wind towers is therefore derived from demand for wind turbines and is driven by the installation of wind turbines in large wind projects.[120]

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[114] *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).

[115] CR at III-11 n.2, PR at III-8 n.2.

[116] *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.

[117] CR at III-12, PR at III-9. The Coalition requests the Commission apply a weight-based, rather than a value-based, analysis to determine whether wind towers account for a predominant part of wind turbines. *See* Coalition Postconf. Br. at Exhibit 1 pp.33-35. The Commission, however, has generally analyzed the captive consumption issue in terms of raw material costs. We find no evidence on the record that warrants departure from our standard value-based analysis in these investigations.

[118] *Utility Scale Wind Towers from China and Vietnam*, Inv. Nos. 701-TA-486 and 731-TA-1195-1196, USITC Pub. 4372 at 24 n.199, 38 (Feb. 2013) (Final). The Coalition and Marmen both assert that the Commission should recognize that a large portion of domestically produced wind towers is captively consumed. Petition at 21; Coalition Postconf. Br. at Exhibit 1 p.35; Marmen Revised Postconf. Br. at 29.

[119] CR at II-1, 9, PR at II-1, 6.

[120] CR/PR at II-1.

Federal and state government incentive programs assert a strong influence on demand for wind towers. These programs offset the cost of generating wind energy or mandate/encourage its use, thereby stimulating demand for renewable energy-generated electricity. In particular, the federal production tax credit ("PTC"), which is a tax credit based on a per kilowatt-hour of wind generation basis for the first ten years of a wind project, is a major driver of demand for wind towers.[121] The PTC has been renewed three times since 2012 and has been extended to 2019, with the value of the tax credit to be phased down each year.[122] Additionally, a number of states have implemented renewable portfolio standards ("RPS"), which require utilities to source a certain share of energy from renewable sources by a particular date.[123] As of July 2017, 29 states and the District of Columbia had such mandatory standards in place.[124]

Apart from government initiatives, other factors also impact demand for wind towers, such as wind energy's cost competitiveness with other energy sources. Although electricity in the United States is primarily supplied by conventional sources (*e.g.*, coal and natural gas), the share of electricity generated from renewable energy sources such as wind has been steadily increasing.[125] According to the DOE, wind power capacity has experienced strong growth due to improvements in the cost and performance of wind power technologies.[126] Indeed, the Energy Information Administration estimates that with tax credits included, the average levelized cost of energy for new wind plants entering into service in 2023 will be lower than other sources including geothermal, solar, and natural gas.[127]

According to the AWEA, utility scale wind turbine installations in the United States declined from 8.2 gigawatts ("GW") in 2016 to 7.0 GW in 2017, and then increased to 7.6 GW in 2018.[128] The parties and several industry sources project installations to increase through 2020.[129] The DOE reports, however, that growth in the wind power market beyond 2020 is uncertain because of declining tax support, expectation for low natural gas prices, and modest growth in demand for electricity.[130] The Coalition asserts that wind turbine demand and installations will decline after 2020 due to the gradual phase out of the PTC, but Marmen and

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[121] CR at II-11-12, PR at II-7-8. Another federal incentive program is the investment tax credit ("ITC"), which is a tax credit equal to 30 percent of a project's cost although the U.S. Department of Energy ("DOE") reports that firms typically opt for the PTC rather than the investment tax credit. *Id.* The ITC incentive levels for wind projects are scheduled to decline at the same rate as the PTC. *See id.*

[122] CR at II-11-12, PR at II-7-8. 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. *See id.*

[123] CR at II-13-14, PR at II-9.

[124] CR at II-14, PR at II-9.

[125] CR at II-15-16, PR at II-11.

[126] CR at II-9, PR at II-6.

[127] CR at II-16, PR at II-11.

[128] CR/PR at Figure II-1.

[129] CR at II-9, PR at II-6; CR/PR at Figure II-1; Coalition Postconf. Br. at 14; Conference Tr. at 107 (Farrell).

[130] CR at II-9, PR at II-6.

the AWEA maintain that demand for wind energy will remain strong even without the PTC in place.[131]

Apparent U.S. consumption in the total market decreased by *** percent from 2016 to 2018, declining from *** towers in 2016 to *** towers in 2017 and *** towers in 2018. Apparent U.S. consumption in the total market was higher in interim 2019 at *** towers than in interim 2018 at *** towers.[132] [133] The majority of market participants reported that demand for wind turbines increased or fluctuated since January 1, 2016.[134] Market participants attributed U.S. demand trends to the PTC as well as to decreasing costs for wind-generated electricity and increased demand for renewable energy.[135]

3. Supply Conditions

In these investigations, 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 declined from *** percent in 2016 to *** percent in 2017 before increasing to *** percent in 2018. Its share of apparent U.S. consumption was lower in interim 2019 at *** percent than in interim 2018 at *** percent.[136] In 2018, six firms accounted for all known U.S. production of wind towers in the United States, with one firm, Vestas Towers, transferring *** of its wind towers to produce the downstream product, wind turbines.[137] The domestic industry's capacity increased by *** percent from 2016 to 2018 due to new entrant

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[131] Petition, Vol. I. at 25; Coalition Postconf. Br. at 14; Marmen Revised Postconf. Br. at 21-23; AWEA Postconf. Br. at 8-9.

[132] CR/PR at Tables IV-9 and C-1. Apparent U.S. consumption of wind towers in the merchant market decreased by *** percent from 2016 to 2018, declining from *** towers in 2016 to *** towers in 2017 and *** towers in 2018. Apparent U.S. consumption in the merchant market was higher in interim 2019 at *** towers than in interim 2018 at *** towers. CR/PR at Tables IV-10 and C-2.

[133] For these preliminary determinations, we have used questionnaire response data to calculate market shares and apparent U.S. consumption because the relevant HTS subheadings include out of scope merchandise. CR at I-14 n.23, PR at I-10 n.23. The Coalition argues that the Commission should rely on official import statistics because, among other things, such data more closely follow trends in turbine installations and account for the fact that importers enter wind towers into bonded warehouses or foreign trade zones where they remain until actually consumed in wind turbine projects. Coalition Postconf. Br. at 17-18, 23, Exhibit 1 pp.1-9. In any final phase of these investigations, we will consider the appropriate use of official statistics as a data source for wind tower imports and we request that if parties have comments that they provide specific proposals in their comments on draft questionnaires.

[134] CR/PR at Table II-6.

[135] CR at II-19, PR at II-13.

[136] CR/PR at Tables IV-11 and C-1. The domestic industry accounted for *** percent of apparent U.S. consumption in the merchant market in 2016, *** percent in 2017, and *** percent in 2018; its share in the merchant market was lower in interim 2019 at *** percent than in interim 2018 at *** percent. CR/PR at Tables IV-12 and C-2.

[137] CR/PR at Table III-1; CR at III-11, PR at III-8.

*** and ***.[138] The domestic industry had excess capacity throughout the period of investigation.[139]

Cumulated subject imports were the second largest source of supply. Their share of apparent U.S. consumption declined from *** percent in 2016 to *** percent in 2017, before increasing to *** percent in 2018. Their share of apparent U.S. consumption was higher in interim 2019 at *** percent than in interim 2018 at *** percent.[140]

Nonsubject imports were the smallest source of supply to the U.S. wind tower market. Their share of apparent U.S. consumption increased from *** percent in 2016 to *** percent in 2017, before declining to *** percent in 2018. Nonsubject imports were not present in the market in interim 2018 and interim 2019.[141] According to official import statistics, Spain and Mexico were the largest sources of nonsubject wind tower imports to the United States during the period of investigation.[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] In general, wind towers produced to the same specifications by an OEM-qualified producer are interchangeable.[144] As discussed above, the majority of U.S. producers and importers reported that the domestic like product and wind towers from Canada, Indonesia, Korea, and Vietnam were always interchangeable in all comparisons.[145]

The record also indicates that price is an important consideration in purchasing decisions. The *** identified total purchase cost (price plus delivered cost) to be among their

[138] CR/PR at Tables III-4 and C-1; CR at III-6, PR at III-3. The domestic industry's capacity increased from *** towers in 2016 to *** towers in 2017 and *** towers in 2018. Its capacity was higher in interim 2019 at *** towers than in interim 2018 at *** towers. *See id.*

[139] The domestic industry's capacity utilization was *** percent in 2016, *** percent in 2017, and *** percent in 2018. Its capacity utilization rate was higher in interim 2019 at *** percent than in interim 2018 at *** percent. CR/PR at Tables III-4 and C-1.

[140] CR/PR at Tables IV-11 and C-1. Cumulated subject imports' share of apparent U.S. consumption in the merchant market increased irregularly during the period of investigation, declining from *** percent in 2016 to *** percent in 2017, before increasing to *** percent in 2018. Their market share in the merchant market was higher in interim 2019 at *** percent than in interim 2018 at *** percent. CR/PR at Tables IV-12 and C-2.

[141] CR/PR at Tables IV-11 and C-1. Nonsubject imports' share of apparent U.S. consumption in the merchant market share declined irregularly during the period of investigation, increasing from *** percent in 2016 to *** percent in 2017, before declining to *** percent in 2018. CR/PR at Tables IV-12 and C-2.

[142] CR at IV-2, PR at IV-2.

[143] CR at II-20-21, PR at II-14.

[144] CR at II-21, PR at II-14.

[145] CR/PR at Table II-7.

top three purchasing factors, along with quality and capacity.[146] Given the size of wind towers and the resulting expense in moving them, shipping costs account for a substantial share of the total delivered cost of wind towers.[147] Additionally, because shipping costs are usually the responsibility of the purchaser, U.S. producers typically quote prices on an f.o.b. basis.[148]

Another important condition of competition is the limited number of OEMs that purchase wind towers. Specifically, the *** account for virtually all purchases and imports of wind towers in the United States.[149] Wind towers produced to the same size and specifications compete head to head in the OEM bidding process, during which an OEM typically requests and accepts bids from multiple producers.[150] *** reported that every project bid involving U.S. producers also involved bids from suppliers of wind towers from one or more of the subject countries.[151] Additionally, ***.[152]

Wind towers are primarily produced to order, and U.S. purchasers reported that all of their commercial shipments were produced to order, with lead times ranging from 100 to 150 days for U.S. producers and 180 to 270 days for U.S. importers.[153] U.S. producers reported selling their wind towers via transaction-by-transaction negotiations and contracts,[154] with most U.S. producers reporting that their contracts allow for price renegotiation.[155]

Steel plate is the primary raw material used in making wind towers, along with flanges, paint, and interior parts.[156] Raw materials account for a substantial share of the cost of goods sold ("COGS") for wind towers. During each full year of the period of investigation, raw materials' share of COGS ranged between *** percent and *** percent.[157]

Since 2018, additional tariffs have been levied on steel used to manufacture wind towers. Specifically, in March 2018, the President announced his decision to impose additional 25 percent *ad valorem* steel tariffs on iron and steel articles imported on or after March 23,

[146] CR at II-21-22, PR at II-15. In response to a question regarding the significance of non-price factors 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. Most importers reported that non-price factors are always or frequently significant. CR/PR at Table II-8.

[147] CR at V-5, PR at V-3.

[148] CR at V-8, PR at V-5. Five responding U.S. producers and two responding U.S. importers reported that their customers arrange transportation from the storage facility to the project site while ***. CR at V-5, PR at V-3.

[149] CR at II-2, PR at II-2.

[150] Coalition Postconf. Br. at 11; CR/PR at Table V-2 and Tables V-4-9.

[151] CR at V-9, PR at V-5.

[152] CR/PR at Table V-2.

[153] CR at II-21; PR at II-15.

[154] CR at V-6; PR at V-4.

[155] CR at V-7, PR at V-4; Coalition Postconf. Br. at 11-12; Conference Tr. at 29-31 (Cole).

[156] CR/PR at V-1.

[157] CR/PR at V-1.

2018 pursuant to Section 232 of the Trade Expansion Act of 1962 ("Section 232 tariffs").[158] [159] *** U.S. producers and six U.S. importers reported increased steel costs as a result of Section 232 tariffs.[160] The record indicates that prices for steel plate fluctuated in 2016, increased in the beginning of 2017 and 2018, and then decreased from January to July 2019.[161]

In addition to the Section 232 tariffs on steel products, other tariffs have been imposed on certain other raw materials used to produce wind towers. USTR imposed additional 25 percent *ad valorem* duties effective August 23, 2018 on a list of articles from China, which included flanges entering under HTS 7308.20.0020, pursuant to Section 301 of the Trade Act of 1974 ("Section 301 tariffs").[162] Certain other raw materials for manufacturing wind towers, such as cut-to-length plate, were included on a separate list of articles from China that will become subject to a 10 percent *ad valorem* tariff effective September 1, 2019.[163]

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."[164]

Cumulated subject imports had a significant presence in the U.S. market during the period of investigation. As apparent U.S. consumption declined from 2016 to 2018, the volume of cumulated subject imports totaled 1,182 towers in 2016, 912 towers in 2017, and 848 towers in 2018.[165] Cumulated subject imports' share of apparent U.S. consumption was *** percent in 2016, *** percent in 2017, and *** percent in 2018.[166]

During interim 2019, when apparent U.S. consumption increased as a result of the anticipated non-renewal of the PTC, the volume of cumulated subject imports rose at a faster

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[158] Section 232 of the Trade Expansion Act of 1962 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. CR at I-17 n.33, PR at I-12 n.33.

[159] Additionally, Commerce imposed antidumping and countervailing duty orders on imports of certain cut-to length steel plate in 2017. CR/PR at Figure V-1 Note.

[160] CR at V-2; PR at V-1-2.

[161] CR/PR at Figure V-1.

[162] CR at I-15, PR at I-11. Section 301 of the Trade Act of 1974 authorizes USTR, at the direction of the President, to take appropriate action to respond to a foreign country's unfair trade practices. CR at I-15 n.26, PR at I-11 n.26.

[163] CR at I-16, PR at I-12; *China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation*, 84 Fed. Reg. 43304 (Aug. 20, 2019) (notice of modification of Section 301 Action).

[164] 19 U.S.C. § 1677(7)(C)(i).

[165] CR/PR at Table IV-2.

[166] CR/PR at Tables IV-11 and C-1. Cumulated subject imports' share of the U.S. merchant market increased overall from 2016 to 2018 by *** percentage points, decreasing from *** percent in 2016 to *** percent in 2017, before increasing to *** percent in 2018. CR/PR at Tables IV-12 and C-2.

rate and was *** percent higher at *** towers than in interim 2018 at *** towers.[167] Cumulated subject imports experienced significant gains in market share directly at the expense of the domestic industry. Their market share was *** percentage points higher in interim 2019 at *** percent than in interim 2018 at *** percent.[168] By contrast, the domestic industry's market share was *** percentage points lower in interim 2019 at *** percent than in interim 2018 at *** percent.[169]

We find that the volume of subject imports is significant both in absolute terms and relative to consumption in the United States.

D. Price Effects of the Subject Imports

Section 771(7)(C)(ii) of the Tariff Act provides that, in evaluating the price effects of 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.[170]

As stated above, the record indicates a moderate-to-high degree of substitutability among subject imports and the domestically produced product. Additionally, total purchase costs along with quality and capacity are important factors in purchasing decisions. Four OEMs account for nearly all purchases of wind towers, and both subject imports and the domestic like product compete for sales to supply wind turbine projects.

As noted above, utility-scale wind towers are sold through an OEM bidding process in which U.S. and foreign suppliers may often participate. The Commission requested U.S. importers, most of which are also purchasers, to provide data on their five largest project bid processes since January 1, 2016, 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.[171] *** firms (***) provided these data in the requested format. *** firms (***) stated that *** could not provide data in the format requested because *** did

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[167] CR/PR at Tables IV-2, C-1.

[168] CR/PR at Tables IV-11 and C-1. Cumulated subject imports' share of the U.S. merchant market was *** percentage points higher in interim 2019 at *** percent than in interim 2018 at *** percent. CR/PR at Tables IV-12 and C-2.

[169] CR/PR at Tables IV-11 and C-1. The domestic industry's share of the U.S. merchant market was *** percentage points lower in interim 2019 at *** percent than in interim 2018 at *** percent. CR/PR at Tables IV-12 and C-2.

[170] 19 U.S.C. § 1677(7)(C)(ii).

[171] CR at V-11, PR at V-6.

not purchase on a project-specific basis. ***. *** stated that there was not enough time to provide any data in the preliminary phase.[172] [173]

The bid data supplied by *** for individual wind projects and that provided by *** in 2019 on a capacity basis, indicate that subject imports significantly underbid the domestic wind towers on an f.o.b. basis.[174] Specifically, in all *** instances involving *** wind towers, subject imports underbid the domestically produced product at average margins that ranged from *** percent to *** percent.[175] We further observe that when comparing subject imports and domestic wind towers on the basis of total delivered cost to purchasers for the same projects, subject imports were priced lower than the domestically produced product in all instances by average margins that ranged from *** percent to *** percent.[176] Purchasers also confirmed purchasing subject imports instead of the domestic wind towers and that subject imports were priced lower than the domestically produced product.[177] Based on the record of the preliminary phase of these investigations, we find that there has been significant underselling of the domestic like product by subject imports.

Price trends are difficult to discern in these investigations due to the made-to-order nature of wind towers and the limited bid data on the record. We observe, however, that average unit values ("AUVs") of sales of the domestic like product declined overall by 0.5 percent from 2016 to 2018 and were 0.3 percent lower in interim 2019 than in interim 2018.[178] AUVs of shipments of subject imports increased overall by 1.3 percent between 2016 and 2018 but were 0.6 percent lower in interim 2019 than in interim 2018.[179] AUVs of shipments of subject imports were consistently below AUVS of shipments of the domestic like product throughout the period of investigation.[180]

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[172] CR at V-11, PR at V-6.

[173] We invite the parties in their comments on any final phase questionnaires to suggest how the Commission can collect a fuller data set and how it should assess the interplay between f.o.b. and delivered prices in purchasing decisions.

[174] CR/PR at Table V-10. We typically compare the U.S. f.o.b. price from its point of shipment in the United States with the f.o.b. price of imports for the first arm's length transaction after the imports have entered the United States. In these investigations, however, there is no arm's length transaction in the United States because the U.S. importers are also the end users of wind towers.

[175] CR/PR at Table V-10.

[176] CR/PR at Table V-10.

[177] *** of five purchasers responding to the Commission's questionnaire reported that they had purchased subject imports instead of the domestic like product since 2016, and *** of these purchasers reported that subject import prices were lower than the domestically produced product. CR/PR at Tables V-13-14.

[178] CR/PR at Tables VI-5 and C-1. AUVs of sales of the domestic like product in the merchant market declined by *** percent from 2016 to 2018 and were *** percent higher in interim 2019 than in interim 2018. CR/PR at Tables VI-5 and C-2.

[179] CR/PR at Table C-1.

[180] CR/PR at Tables C-1-2.

While the domestic industry's unit sales values declined from 2016 to 2018, its unit cost of goods sold ("COGS") increased overall by 6.2 percent.[181] Falling unit sales values together with increasing unit COGS caused the domestic industry's ratio of COGS to net sales to rise from 82.7 percent in 2016 to 88.3 percent in 2018, providing some evidence of a cost-price squeeze.[182] Furthermore, the domestic industry's unit sales values in interim 2019 were lower than in interim 2018, despite higher apparent U.S. consumption in interim 2019.[183] Consequently, despite the uptick in apparent U.S. consumption in interim 2019, the domestic industry's ratio of COGS to net sales did not recover to levels experienced at the beginning of the period of investigation.[184] Given the rising volume and market share of subject imports in interim 2019, the small number of OEMs in the market, and evidence on the record regarding pricing pressure placed by OEMs on domestic producers,[185] we cannot conclude that subject imports did not suppress domestic prices to a significant degree.[186]

In sum, for purposes of the preliminary phase of these investigations, we find that cumulated subject imports significantly undersold the domestic like product, and we cannot rule out that the cumulated subject imports suppressed domestic prices to a significant degree. We consequently find that the cumulated subject imports had significant adverse price effects.

E. Impact of the Subject Imports[187]

Section 771(7)(C)(iii) of the Tariff Act provides that the Commission, in examining the impact of the subject imports on the domestic industry, "shall evaluate all relevant economic factors which have a bearing on the state of the industry." 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

[181] CR/PR at Tables VI-3 and C-1. In the merchant market, the domestic industry's unit COGS increased by *** percent from 2016 to 2018. CR/PR at Tables VI-1 and C-1.

[182] CR/PR at Tables VI-1 and C-1. In the merchant market, the domestic industry's ratio of COGS to net sales increased from *** percent in 2016 to *** percent in 2018. CR/PR at Tables VI-1 and C-2.

[183] CR/PR at Table C-1. In the merchant market, the domestic industry's unit sales values were higher in interim 2019 than in interim 2018. CR/PR at Tables VI-1 and C-2.

[184] In interim 2019, the domestic industry's ratio of COGS to net sales was 87.7 percent in the total market and *** percent in the merchant market. CR/PR at Tables VI-5 and C-1-2.

[185] Petition, Vol. I at Exhibit I-8; Coalition Postconf. Br. at Exhibit 11.

[186] *** of five responding purchasers reported that they had purchased wind towers from at least one subject country instead of the domestic like product and that subject import prices were lower than prices of the domestic like product. However, *** firms indicated that price was not the primary reason for purchasing subject imports rather than the domestic like product. Additionally, 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 the U.S. producers had not done so. CR at Tables V-13-15.

[187] In its notice initiating the antidumping duty investigations on wind towers from Canada, Indonesia, Korea, and Vietnam, Commerce reported estimated dumping margins ranging from 53.63 to 61.59 percent for imports from Canada, 26.00 to 47.19 percent for imports from Indonesia, 280.69 to 331.26 percent for imports from Korea, and 39.97 to 65.96 percent for imports from Vietnam. Commerce AD Initiation, 84 Fed. Reg. at 37996.

capital, ability to service debt, research and development, and factors affecting domestic prices. 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."[188]

Many of the domestic industry's production- and employment-related factors and financial indicators declined over the full years of the period of investigation, with some improvement in interim 2019 relative to interim 2018 as apparent U.S. consumption increased. The domestic industry's capacity increased by 7.3 percent from 2016 to 2018, from 3,854 towers in 2016 to 4,089 towers in 2017 and 4,136 towers in 2018. Its capacity was higher in interim 2019 at 1,046 towers than in interim 2018 at 1,026 towers.[189] The domestic industry's production decreased by 13.2 percent from 2016 to 2018, declining from 3,087 towers in 2016 to 2,765 towers in 2017 and 2,679 towers in 2018. Its production was higher in interim 2019 at 734 towers than in interim 2018 at 631 towers.[190] The domestic industry's capacity utilization decreased by 15.3 percentage points from 2016 to 2018, declining from 80.1 percent in 2016 to 67.6 percent in 2017 and 64.8 percent in 2018. Its capacity utilization was higher in interim 2019 at 70.2 percent than in interim 2018 at 61.5 percent.[191]

The domestic industry's U.S. shipments fluctuated between years but decreased overall by 13.4 percent from 2016 to 2018, declining from 3,118 towers in 2016 to 2,666 towers in 2017, before increasing to 2,699 towers in 2018. Its U.S. shipments were higher in interim 2019 at 712 towers than in interim 2018 at 668 towers.[192] The industry's ending inventories also fluctuated between years but rose overall by 73.8 percent from 2016 to 2018, increasing from 107 towers in 2016 to 206 towers in 2017, before decreasing to 186 towers in 2018. End-of-period inventories were higher in interim 2019 at 208 towers than in interim 2018 at 169 towers.[193] The domestic industry's share of apparent U.S. consumption fluctuated between years but increased overall by *** percentage points from 2016 to 2018, declining from *** percent in 2016 to *** percent in 2017, before increasing to *** percent in 2018. Its share of apparent U.S. consumption was lower in interim 2019 at *** percent than in interim 2018 at *** percent.[194]

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[188] 19 U.S.C. § 1677(7)(C)(iii). This provision was amended by the Trade Preferences Extension Act of 2015, Pub. L. 114-27.

[189] CR/PR at Tables III-4 and C-1.

[190] CR/PR at Tables III-4 and C-1.

[191] CR/PR at Tables III-4 and C-1.

[192] CR/PR at Tables IV-9 and C-1. *See id.* The domestic industry's commercial U.S. shipments decreased by *** percent between 2016 and 2018, declining from *** towers in 2016 to *** towers in 2017, before increasing to *** towers in 2018. Its commercial U.S. shipments were higher in interim 2019 at *** towers than in interim 2018 at *** towers. CR/PR at Tables IV-10 and C-2.

[193] CR/PR at Tables III-7 and C-1.

[194] CR/PR at Tables IV-9 and C-1. The domestic industry's share of apparent U.S. consumption in the merchant market increased by *** percentage points between 2016 and 2018, decreasing from *** percent in 2016 to *** percent in 2017, before increasing to *** percent in 2018. Its share of apparent U.S. consumption in the merchant market was lower in interim 2019 at *** percent than in interim 2018 at *** percent. CR/PR at Tables IV-10 and C-2.

Employment,[195] total hours worked,[196] and productivity[197] fluctuated between years but decreased overall from 2016 to 2018. Wages paid fluctuated between years but increased overall from 2016 to 2018.[198]

The domestic industry's net sales,[199] gross profit,[200] operating income,[201] and net income[202] declined overall from 2016 to 2018, but were all higher in interim 2019 than in

[195] Employment decreased overall by 3.8 percent from 2016 to 2018, increasing from 2,241 production-related workers ("PRWs") in 2016 to 2,312 PRWs in 2017, before decreasing to 2,155 PRWs in 2018. Employment was lower in interim 2019 at 2,108 PRWs than in interim 2018 at 2,166 PRWs. CR/PR at Tables III-8 and C-1.

[196] Hours worked declined overall by 4.2 percent from 2016 to 2018, increasing from 4.6 million hours in 2016 to 4.9 million hours in 2017, before declining to 4.4 million hours in 2018. Hours worked was at 1.1 million in interim 2018 and interim 2019. CR/PR at Tables III-8 and C-1.

[197] Productivity (in towers per 10,000 hours) declined overall by 9.4 percent from 2016 to 2018, decreasing from 6.7 towers in 2016 to 5.7 towers in 2017, before increasing to 6.1 towers in 2018. Productivity was higher in interim 2019 at 6.6 towers than in interim 2018 at 5.6 towers. CR/PR at Tables III-8 and C-1.

[198] Wages paid increased overall by 1.1 percent, increasing from $155.1 million in 2016 to $160.0 million in 2017, before declining to $156.8 million in 2018. Wages paid were lower in interim 2019 at $38.7 million than in interim 2018 at $40.0 million. CR/PR at Tables III-9 and C-1.

[199] CR/PR at Table VI-3. The domestic industry's net sales revenues in the total market declined from $1.0 billion in 2016 to $846.2 million in 2017, before increasing to $868.3 million in 2018. Its net sales revenues in the total market were higher in interim 2019 at $222.3 million than in interim 2018 at $209.2 million. *See id.* In the merchant market, the domestic industry's net sales revenues declined from $*** in 2016 to $*** in 2016 and $*** in 2018. Its net sales revenues in the merchant market were higher in interim 2019 at $*** than in interim 2018 at $***. CR/PR at Table VI-1. The domestic industry's net sales in the captive market declined from $*** in 2016 to $*** in 2017, before increasing to $*** in 2018. Its net sales in the captive market were lower in interim 2019 at $*** than in interim 2018 at $***. CR/PR at Table VI-3.

[200] CR/PR at Table VI-5. The domestic industry's gross profit in the total market declined from $174.7 million in 2016 to $139.8 million in 2017 and $102.0 million in 2018. Its gross profit in the total market was higher in interim 2019 at $27.3 million than in interim 2018 at $19.8 million. *See id.* In the merchant market, the domestic industry's gross profit declined from $*** in 2016 to $*** in 2017 and $*** in 2018. Its gross profit in the merchant market was higher in interim 2019 at $*** than in interim 2018 at $***. *See id.*

[201] CR/PR at Table VI-5. The domestic industry's operating income in the total market decreased from $148.2 million in 2016 to $111.7 million in 2017 and $76.7 million in 2018. Its operating income in the total market was higher in interim 2019 at $21.1 million than in interim 2018 at $12.7 million. *See id.* In the merchant market, the domestic industry's operating income decreased from $*** in 2016 to $*** in 2017 and $*** in 2018. Its operating income in the merchant market was higher in interim 2019 at $*** than in interim 2018 at $***. *See id.* The domestic industry's operating income in the captive market increased from $*** in 2016 to $*** in 2017, before decreasing to $*** in 2018. Its operating income in the captive market was higher in interim 2019 at $*** than in interim 2018 at $***. *See id.*

[202] CR/PR at Table VI-5. The domestic industry's net income in the total market decreased from $126.7 million in 2016 to $85.9 million in 2017 and $53.3 million in 2018. Its net income in the total market was higher in interim 2019 at $14.2 million than in interim 2018 at $5.9 million. *See id.* The

interim 2018. The domestic industry's unit net sales value declined from 2016 to 2018 and was lower in interim 2019 than in interim 2018.[203] Operating income as a share of net sales also declined overall from 2016 to 2018, but was higher in interim 2019 than in interim 2018.[204]

Domestic producers' capital expenditures declined from 2016 to 2018.[205] Domestic producers also reported negative effects on investment and on growth and development due to subject imports.[206]

Based on the record in the preliminary phase of these investigations, we do not find clear and convincing evidence of no material injury by reason of the cumulated subject imports. Cumulated subject imports were significant in volume and significantly undersold the domestic like product throughout the period of investigation. Additionally, as demand rose towards the latter portion of the period of investigation, cumulated subject imports increased and took market share from the domestic industry. We further cannot conclude that during this latter portion of the period of investigation the increasing and low-priced subject imports did not suppress domestic prices to a significant degree. We therefore cannot conclude that the domestic industry's revenues and profits were not significantly lower than they would have been otherwise during this time period or that cumulated subject imports did not have significant adverse impact on the domestic industry.

We have considered whether there are other factors that may have had an impact on the domestic industry during the period of investigation to ensure that we are not attributing injury from such other factors to the subject merchandise. Marmen and Vestas argue that the domestic producers' inability to control increasing costs of steel and other raw material inputs

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domestic industry's net income in the merchant market decreased from $*** in 2016 to $*** in 2017 and $*** in 2018. Its net income in the overall market was higher in interim 2019 at $*** than in interim 2018 at $***. *See id.*

[203] CR/PR at Table VI-5. The domestic industry's unit net sales value in the total market declined from $323,392 per tower in 2016 to $317,396 per tower in 2017, before increasing to $321,710 per tower in 2018. Its unit net sales value in the total market was lower in interim 2019 at $312,237 per tower than in interim 2018 at $313,157 per tower. *See id.* In the merchant market, the domestic industry's unit net sales value increased from $*** per tower in 2016 to $*** per tower in 2017, before declining to $*** per tower in 2018. Its unit net sales value in the merchant market was higher in interim 2019 at $*** per tower than in interim 2018 at $*** per tower. *See id.*

[204] CR/PR at Table VI-5. The domestic industry's operating income as a share of net sales in the total market decreased from 14.7 percent in 2016 to 13.2 percent in 2017 and 8.8 percent in 2018. Its operating income as a share of net sales in the total market was higher in interim 2019 at 9.5 percent than in interim 2018 at 6.1 percent. *See id.* The domestic industry's operating income as a share of net sales in the merchant market decreased from *** percent in 2016 to *** percent in 2017 and *** percent in 2019. Its operating income as a share of net sales in the merchant market was higher in interim 2019 at *** percent than in interim 2018 at *** percent. *See id.*

[205] CR/PR at Table VI-6. The domestic industry's capital expenditures declined from $70.2 million in 2016 to $41.4 million in 2017 and $27.2 million in 2018. Its capital expenditures were lower in interim 2019 at $4.9 million than in interim 2018 at $***. *See id.*

[206] CR/PR at Tables VI-8-9.

caused the industry's financial challenges.[207] We plan to explore this issue more in any final phase of the investigations.

Additionally, Marmen argues that competition between subject imports and the domestic like product is attenuated because the subject producers serve different geographic markets than the domestic industry, which is located mainly in the "wind corridor" (the central region of the United States Between the Mississippi River and Rocky Mountains).[208] It argues that due to the high costs associated with shipping heavy wind towers, imports of complete wind towers from Canada are shipped predominantly to the Northeast and Great Lakes regions of the United States while subject imports from Asia are shipped to the West and Gulf Coast regions.[209] This argument, however, does not explain why the domestic industry lost market share during the latter portion of the period of investigation when demand significantly increased. It also does not explain why the cumulated subject imports significantly undersold the domestic like product. However, in any final phase of the investigations, we will further examine supply issues in this market.[210]

We have also considered the role of nonsubject imports and demand in the U.S. market. Nonsubject imports declined during the period of investigation. Their market share fluctuated, but declined overall from *** percent in 2016 to *** percent in 2018.[211] They were not present in the U.S. market in interim 2019.[212] Nonsubject imports, therefore, cannot explain the domestic industry's declining financial performance during the period of investigation. Although demand declined for most of period of investigation, which likely played a role in declining U.S. output trends, it increased significantly in interim 2019 and does not explain the domestic industry's loss of market share and decline in unit net sales value during this latter time period.

VII. Conclusion

For the reasons stated above, we determine that there is a reasonable indication that an industry in the United States is materially injured by reason of subject imports of wind towers from Canada, Indonesia, Korea, and Vietnam that are allegedly sold in the United States at less than fair value and allegedly subsidized by the governments of Canada, Indonesia, and Vietnam.

[207] Marmen Revised Postconf. Br. 37-41; Vestas Postconf. Br. at 7-8.

[208] Marmen Revised Postconf. Br. at 14-18, 27-30, 38.

[209] Marmen Revised Postconf. Br. at 14-18, 30.

[210] We will obtain further information in any final phase of the investigations addressing the ability of the domestic industry/subject suppliers to ship wind towers to different geographical regions, including demand and shipments to the Northeast region.

[211] CR/PR at Tables IV-11 and C-1. Nonsubject imports' share of the merchant market fluctuated, but declined overall from *** percent in 2016 to *** percent in 2018. CR/PR at Tables IV-12 and C-2.

[212] CR/PR at Tables IV-11 and C-1.

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 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. [1] The following tabulation provides information relating to the background of these investigations.[2] [3]

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)
July 30, 2019	Commission's conference
August 22, 2019	Commission's vote
August 23, 2019	Commission's determinations
August 30, 3019	Commission's views

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

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

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

STATUTORY CRITERIA AND ORGANIZATION OF THE REPORT

Statutory criteria

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

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

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

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

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

advanced version of the domestic like product, and (V) in {an antidumping investigation}, the magnitude of the margin of dumping.

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

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

Organization of report

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

MARKET SUMMARY

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 Arcosa, Vestas, and Marmen, 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. The leading U.S. importers of wind towers from Canada in 2018 were ***. The leading U.S. importers of wind towers from Indonesia in 2018 were ***. The leading U.S. importers of wind towers from Korea in 2018 were ***. The leading U.S. importer of wind towers from Vietnam in 2018 was ***. Leading importers of wind towers from nonsubject countries (primarily Mexico, Spain, and Italy) include ***. Four OEMs *** that purchase wind towers accounted for nearly all wind turbine installations in 2017.[6]

Apparent U.S. consumption of wind towers totaled approximately *** in 2018.[7] Currently, six firms are known to produce wind towers in the United States. U.S. producers' U.S. shipments of wind towers totaled 2,699 towers (approximately $868 million) in 2018, and

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

[6] *Utility Scale Wind Towers from China and Vietnam*, *Investigation Nos. 701-TA-486 and 731-TA-1195-1196 (Review)*, USITC Publication 4888, April 2019, p. I-29.

[7] Unless otherwise noted, data referring to apparent U.S. consumption in *Part I* refers to total market consumption.

accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. shipments of imports from subject sources totaled 848 towers (approximately $249 million) in 2018 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. imports from nonsubject sources totaled *** in 2018 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value.

SUMMARY DATA AND DATA SOURCES

A summary of data collected in these investigations is presented in appendix C, in 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, or nearly all, known U.S. production of wind towers during 2018. 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 2018.

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.[8] The Commission determined on February 8, 2013 that the domestic industry was materially injured or threatened with material injury by reason of LTFV imports of wind towers from China and Vietnam and subsidized imports of wind towers from China.[9] [10] On February 15, 2013, Commerce issued its antidumping duty orders on

[8] *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.

[9] *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.

[10] 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

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.[11] 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.[12] Commerce subsequently concluded its first administrative review of the antidumping duty order on wind towers from Vietnam 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.[13] Table I-1 illustrates the revised antidumping duty margins for Vietnam.

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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).

[11] *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.

[12] *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.

[13] *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: *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; *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 29, 2017; and *Utility Scale Wind Towers From the People's Republic of China and the Socialist Republic of Vietnam: Final Results of Expedited First Sunset Reviews of Antidumping Duty Orders*, 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.[14]

NATURE AND EXTENT OF ALLEGED SUBSIDIES AND SALES AT LTFV

Alleged subsidies

On August 6, 2019, Commerce published a notice in the *Federal Register* of the initiation of its countervailing duty investigations on wind towers from Canada, Indonesia, and Vietnam.[15] In its notice of initiation, Commerce identified the following government programs:

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

[15] *Utility Scale Wind Towers From Canada, Indonesia, and the Socialist Republic of Vietnam: Initiation of Countervailing Duty Investigations*, 84 FR 38216, August 6, 2019.

Canada[16]

- Export Guarantee Program
- Foreign Affairs and International Trade Canada Can Export Program
- Export Development Canada Export Financing for Steel
- Federal Accelerated Capital Cost Allowances for Class 29 Assets
- Federal Accelerated Capital Cost Allowances for Class 43.1 and 43.2 Assets
- Federal Scientific Research and Experimental Development Tax Credit
- Federal Apprenticeship Job Creation Tax Credit
- Atlantic Investment Tax Credit
- Quebec Tax Holiday for Large Investment Projects
- Tax Credit for the Acquisition of Manufacturing and Processing Equipment in Quebec
- Quebec Capital Cost Allowance for Property Used in Manufacturing and Processing
- Quebec Columbia Scientific Research and Experimental Development Tax Credit
- Hydro-Quebec Interruptible Electricity Option Program
- Hydro-Quebec Electricity Discount Program for Capital Investments
- Hydro-Quebec Electricity Discount Program for Industrial Users
- ESSOR Program-Investment Projects Support Component (Quebec)
- ÉcoPerformance-Ministry of Energy and Natural Resources ("MERN") Transition énergétique Quebec ("TEQ")/Energy Efficiency Conversion Projects (Quebec)
- Quebec Local Content Requirements/Purchase of Wind Towers for More Than Adequate Remuneration ("MTAR")
- Ontario Employer Trainer Grant (Canada-Ontario Job Grant)
- Independent Electricity System Operator Demand Response (Ontario)
- Ontario Local Content Requirements/Purchase of Wind Towers for MTAR

Indonesia[17]

- Provision of Cut-to-Length Steel Plate for Less Than Adequate Remuneration ("LTAR")
- Preferential Export Financing from the Indonesian Export-Import Bank
- Industrial Estate Subsidies
- Corporate Income Tax Holiday for Pioneer Industries
- Income Tax Benefits for Listed Investments
- Guarantees from the Indonesia Infrastructure Guarantee Fund for Infrastructure Projects
- Electricity for LTAR

[16] *Countervailing Duty Investigation Initiation Checklist, Utility Scale Wind Towers from Canada, July 29, 2019.*

[17] *Countervailing Duty Investigation Initiation Checklist, Utility Scale Wind Towers from Indonesia, July 29, 2019.*

Vietnam[18]

- Investment Credits from the Vietnam Development Bank
- Export Credits from the Vietnam Development Bank
- Preferential Lending to Exporters
- Interest Rate Support Program under the State Bank of Vietnam
- Export Factoring
- Financial Guarantees for Export Activities
- Land Preferences, Including Exemption from or Reduction of Rent and Land Taxes, for Enterprises in Selected Regions
- Land Rent Exemptions for Exporters
- Land Rent Exemptions for Foreign-Invested Enterprises
- Land Rent Exemptions for Enterprises Located in Special Zones
- Provision of Utilities for LTAR in Industrial Zones
- Income Tax Preferences under Chapter IV of Decree 124
- Income Tax Preferences under Chapter V of Decree 164
- Income Tax Preferences under Chapter V of Decree 24
- Income Tax Preferences Under Decree 60
- Income Tax Preference under Chapter IV of Decree 218
- Import Duty Exemptions on Imports of Raw Materials for Exporting Goods
- Import Duty Exemptions on Imports of Spare Parts and Accessories in Industrial Zones
- Import Duty Exemptions for Foreign-Invested Entities
- Decree 51 Programs
    - Land-Rent Reductions/Exemptions (Article 18 of Decree 51)
    - Enterprise Income Tax Exemptions and Reductions for Business Expansion and Intensive Investment (Article 23 of Decree 51)
    - Tax Preferences for Investors Producing and/or Dealing in Export Goods (Article 27 of Decree 51)
    - Investment Support (Article 30 of Decree 51)
- Export Promotion

[18] *Countervailing Duty Investigation Initiation Checklist, Utility Scale Wind Towers from Vietnam, July 29, 2019.*

Alleged sales at LTFV

On August 5, 2019, Commerce published a notice in the *Federal Register* of the initiation of its antidumping duty investigations on product from Canada, Indonesia, Korea, and Vietnam. Commerce has initiated antidumping duty investigations based on estimated dumping margins of 53.63 to 61.59 percent for subject merchandise from Canada, 26.00 to 47.19 percent for subject merchandise from Indonesia, 280.69 to 331.26 percent for subject merchandise from Korea, and 39.97 to 65.96 percent for subject merchandise from Vietnam.[19]

THE SUBJECT MERCHANDISE

Commerce's scope

In the current proceeding, Commerce has defined the scope as follows:
The merchandise covered by these investigations 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 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.

[19] *Utility Scale Wind Towers From Canada, Indonesia, the Republic of Korea, and the Socialist Republic of Vietnam: Initiation of Less-Than-Fair-Value Investigations*, 84 FR 37992, August 5, 2019.

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 these investigations 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 investigations is dispositive. [20]

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 North American Free Trade Agreement ("NAFTA") and in Indonesia 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.

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[20] *Utility Scale Wind Towers From Canada, Indonesia, the Republic of Korea, and the Socialist Republic of Vietnam: Initiation of Less-Than-Fair-Value Investigations*, 84 FR 37992, August 5, 2019.

[21] Wind towers of iron or steel are classified under 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 may also be classified under 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 (2019) Revision 11*, USITC Publication 4948, August 2019, ch. 73, p. 23; ch. 85, p. 13. See also HTS General Note 3, p. 6; General Note 4, pp. 11, 13, 14; General Note 12, p. 24. Vietnam is not a designated beneficiary developing country for purposes of the GSP program. HTS General Note 4, p. 11.

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" or "List 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 Act of 1974* ("*Trade Act*").[26] See also U.S. notes 20(c) and 20(d) to subchapter III of HTS chapter 99.[27]

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 blades), were included in USTR's first enumeration ("Tranche 1" or "List 1") of products originating in China that became subject to the additional 25 percent ad valorem duties (annexes A and B of

[25] *Notice of Action and Request for Public Comment Concerning Proposed Determination of Action Pursuant to Section 301: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation*, 83 FR 40823, August 16, 2018.

[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. *Initiation of Section 301 Investigation; Hearing; and Request for Public Comments: China's Acts, Policies, and Practices 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. *Notice of Determination and Request for Public Comment Concerning Proposed Determination of Action Pursuant to Section 301: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation*, 83 FR 14906, April 6, 2018.

USTR further determined that it was appropriate and feasible to take action and proposed the imposition of an additional 25 percent ad valorem duty on products of China with an annual trade value of approximately $50 billion. Tranche 1 covered 818 tariff subheadings, with an approximate annual trade value of $34 billion. Tranche 2 covered 279 tariff subheadings, with an approximate annual trade value of $16 billion. *Notice of Action and Request for Public Comment Concerning Proposed Determination of Action Pursuant to Section 301: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation*, 83 FR 28710, June 20, 2018; *Notice of Action Pursuant to Section 301: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation*, 83 FR 40823, August 16, 2018.

[27] *HTSUS (2019) Revision 11*, USITC Publication 4948, August 2019, pp. 99-III-18, 99-III-19, 99-III-20, 99-III-84.

83 FR 28710), since July 6, 2018,[28] pursuant to Section 301 of the *Trade Act*. See also U.S. notes 20(a) and 20(b), subchapter III of chapter 99.[29]

Moreover, the raw materials for manufacturing wind towers— certain steel mill products, such as cut-to-length plate, classifiable under the HTS subheadings of chapter 72— were included in the enumeration ("Tranche 4" or "List 4") of the products originating in China that USTR proposed, on May 17, 2019, for additional duties up to 25 percent ad valorem (annex, section 1 of 84 FR 22564).[30] As directed by the President on August 1, 2019,[31] USTR announced that the United States will impose additional 10 percent duties on most of these remaining products (including certain steel mill products) imported from China ("List 4A"), effective September 1, 2019.[32]

Section 232 proclamations

The 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 duties, pursuant to Section 232 of the *Trade Expansion Act of 1962*, as amended ("*Trade Expansion Act*").[33] The President issued subsequent Proclamations to exempt or adjust

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[28] *Notice of Action and Request for Public Comment Concerning Proposed Determination of Action Pursuant to Section 301: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation*, 83 FR 28710, June 20, 2018.

[29] *HTSUS (2019) Revision 11*, USITC Publication 4948, August 2019, pp. 99-III-13, 99-III-14, 99-III-16, 99-III-84.

[30] *Request for Comments Concerning Proposed Modification of Action Pursuant to Section 301: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation*, 84 FR 22564, May 17, 2019.

[31] See: The White House, "Remarks by President Trump Before Marine One Departure," August 1, 2019, https://www.whitehouse.gov/briefings-statements/remarks-president-trump-marine-one-departure-56/.

[32] USTR, "USTR Announces Next Steps on Proposed 10 Percent Tariff on Imports from China," Press Release, August 13, 2019, https://ustr.gov/about-us/policy-offices/press-office/press-releases/2019/august/ustr-announces-next-steps-proposed; USTR, "List 4A — Effective September 1, 2019, https://ustr.gov/sites/default/files/enforcement/301Investigations/List_4A_%28Effective_September_1%2C_2019%29.pdf.

A few steel mill products were among the products ("List 4B") for which the 10 percent duties are delayed to December 15, 2019, https://ustr.gov/sites/default/files/enforcement/301Investigations/List_4B_%28Effective_December_15%2C_2019%29.pdf.

[33] Section 232 of the *Trade Expansion Act* (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

these duties for selected U.S. trade partners.[34] See U.S. notes 16(a) and 16(b) in subchapter III of HTS chapter 99.[35] Imported wind towers are not covered by these additional duties.

THE PRODUCT

Description and applications[36]

Wind towers are a component of wind turbines. Wind turbines, whether designed for onshore or offshore electric-power generation,[37] 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.[38] The nacelle is mounted on top of the tower, which is typically of tubular-shaped steel for utility-scale wind turbines (figure I-1).

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national security. *Adjusting Imports of Steel Into the United States*, Presidential Proclamation 9705, March 8, 2018, 83 FR 11625, March 15, 2018.

[34] *Adjusting Imports of Steel Into the United States*, Presidential Proclamation 9711, March 22, 2018, 83 FR 13361, March 28, 2018; Presidential Proclamation 9740, April 30, 2018, 83 FR 20683, May 7, 2018; Presidential Proclamation 9759, May 31, 2018, 83 FR 25857, June 5, 2018; Presidential Proclamation 9772, August 10, 2018, 83 FR 40429, August 15, 2018; and Presidential Proclamation 9777, August 29, 2018, 83 FR 45025, September 4, 2018, exempted imports of iron and steel mill products originating from Argentina, Australia, Brazil, and South Korea; but doubled the duty rate on such imported products originating from Turkey, as of June 1, 2018. U.S. Customs and Border Protection, "Section 232 Tariffs on Aluminum and Steel Duty on Imports of Steel and Aluminum Articles Under Section 232 of the Trade Expansion Act of 1962," April 2, 2019.

Subsequently, Presidential Proclamation 9886, May 16, 2019, 84 FR 23421, May 21, 2019 restored the original additional duty rate on steel mill products originating from Turkey, effective May 21, 2019; and Presidential Proclamation 9894, May 19, 2019, 84 FR 23987, May 23, 2019, restored the duty exemptions for steel mill products originating from Canada and Mexico, effective May 20, 2019.

[35] *HTSUS (2019) Revision 11*, USITC Publication 4948, August 2019, pp. 99-III-5, 99-III-6, 99-III-76, 99-III-77, 99-III-81.

[36] Unless otherwise noted, this information is based on *Utility Scale Wind Towers from China and Vietnam*, *Investigation Nos. 701-TA-486 and 731-TA-1195-1196 (Review)*, USITC Publication 4888, April 2019, pp. I-7 - I-12. Credits for photographs were retained.

[37] 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.

[38] 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

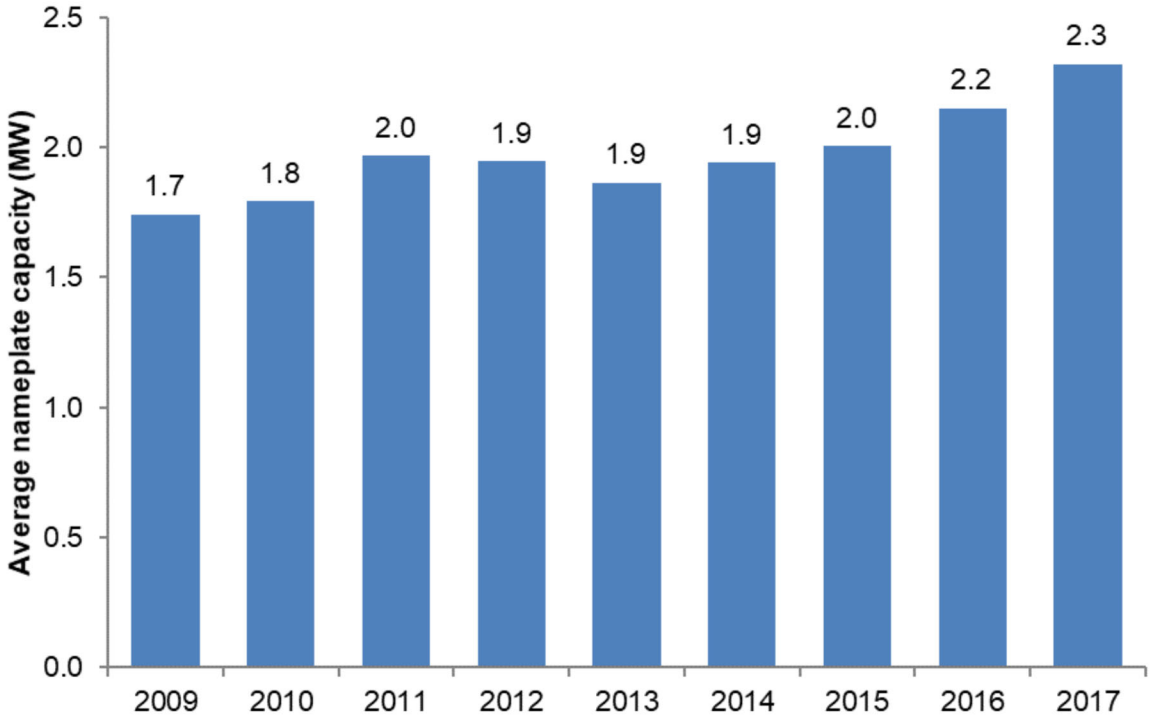
Source: Photo courtesy of DOE/NREL, credit: Dennis Schroeder.

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.[39] 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 2.3 MW in 2017 (figure I-2). According to the American Wind Energy Industry Association ("AWEA"), the average capacity reached 2.4 MW for wind turbines installed in 2018.[40]

[39] Wind Energy Technologies Office, WINDExchange, "Utility-Scale Wind Energy," https://windexchange.energy.gov/markets/utility-scale, retrieved August 7, 2019.

[40] AWEA's postconference brief, p. 12.

Figure I-2
Wind towers: Average nameplate capacity of wind turbines installed in the United States, 2009–17



Source: Wiser, Ryan and Mark Bolinger, *2017 Wind Technologies Market Report*, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, 2018, data file, https://emp.lbl.gov/windtechnologies-market-report.

Wind turbines can be installed individually or as part of a larger wind project (also referred to as a "wind farm"). Installations of wind turbines for electric-power utilities and independent power producers[41] 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.

Utility-scale wind turbines generally use tubular steel towers that consist of multiple (base, one or more mid, and top) sections 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,

[41] 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.

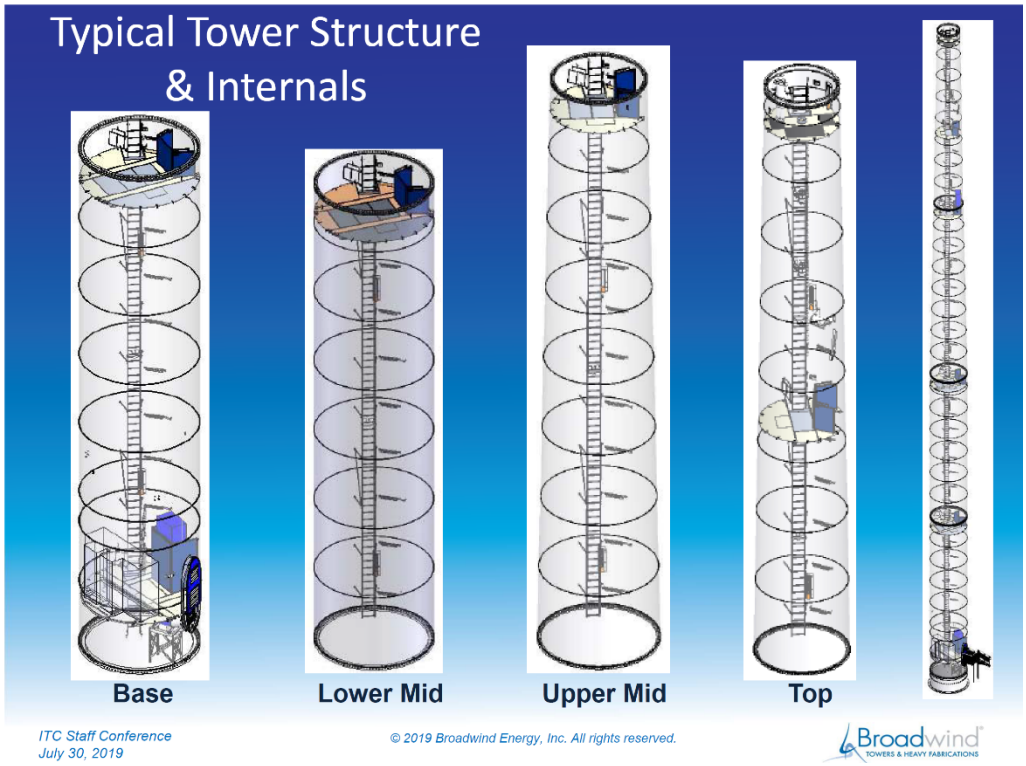
depending on the height and steel gauge (thickness).[42] At the base of the tower there is a steel door that allows for entry into the tower, inside of which are the tower's internal mechanical and electrical fittings ("internals") such as platforms, ladders, lighting, lifts (elevators), electrical-cable harnesses, storage lockers, and other accessories.[43] For the typical structures and internals for each tower section, see figure I-4.

Figure I-3
Wind towers: Installed wind turbines

Source: Courtesy DOE/NREL, credit Iberdrola Renewables.

[42] Petition, p. 9.
[43] Petition, p. 12; staff conference transcript, p. 22 (Janda).

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



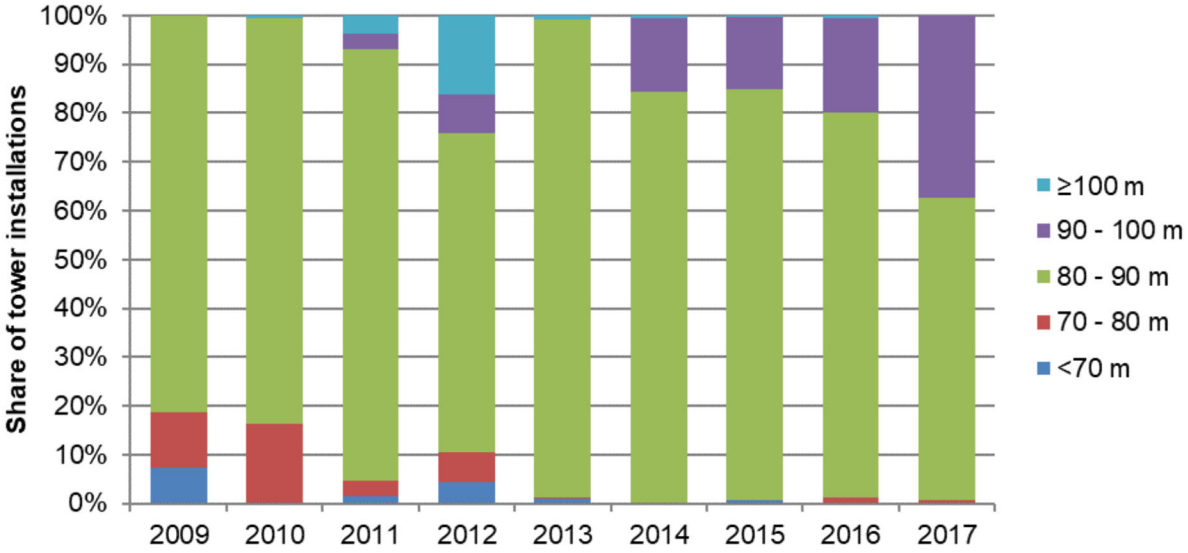
Source: Janda, "Wind Tower Manufacturing," Broadwind Energy Inc., 2017, p. 2 (presented at the USITC staff conference, July 30, 2019).

The average hub height of wind towers installed in the United States increased from 79 meters (259 feet) in 2009 to 86 meters (282 feet) in 2017. Towers of 80 meters (262 feet) to 90 meters (295 feet) in height accounted for most of the market during this time period. 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[44] that can capture more energy from the higher wind speeds occurring at higher altitudes.[45]

[44] 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.

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

Figure I-5
Wind towers: Share of U.S. market installations by tower height, 2009–17



Note.-- m=meters.

Source: Wiser, Ryan and Mark Bolinger, *2017 Wind Technologies Market Report*, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, 2018, data file, https://emp.lbl.gov/windtechnologies-market-report.

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 of wind turbines. These include concrete and space frame towers (lattice towers with five legs covered with an architectural fabric).

Manufacturing processes[46]

Wind towers are typically produced to the proprietary specifications of each individual original equipment manufacturer ("OEM") to support its nacelle.[47] Each wind-turbine OEM usually has multiple tower designs. The wind-turbine model and characteristics of the wind project site dictate which tower design will be used in a particular wind project. As both domestic and foreign tower manufacturers produce to customer specifications, compete for the same sales, and sell to the same OEM purchasers, Petitioners argue that all towers sold to an OEM are fungible regardless of source.[48] OEMs tend to purchase complete towers from a

[46] Unless otherwise noted, this information is based on *Utility Scale Wind Towers from China and Vietnam*, *Investigation Nos. 701-TA-486 and 731-TA-1195-1196 (Review)*, USITC Publication 4888, April 2019, pp. I-12 - I-16. Credits for photographs were retained.

[47] Petition, p. 8.

[48] Petitioners' postconference brief, p. 5.

single supplier rather than mixing tower sections provided by different suppliers for reasons of product warranty and liability, avoiding any potential assembly problems at the project site, and assured delivery of all sections needed to complete the tower.[49] Marmen claims that its complete "hybrid" towers are mostly a domestic product, with approximately two-thirds of the value being derived from the base and mid sections manufactured at its facility in South Dakota, while the top section is imported from its facilities in Quebec, Canada. Although Marmen can produce every type of tower section at both its U.S. and Canadian facilities, manufacturing is split among facilities to reduce the transportation costs for its customers.[50]

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).[51]

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.[52]

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 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 cans. The quality of the weld 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.[53]

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[49] Marmen's postconference brief, exh. 8: Declaration of Jorge Rivera, GE.

[50] Marmen's postconference brief, p. 39; staff conference transcript, pp. 119-120, 122 (Pellerin); pp. 173-174, 180-181 (Trudel).

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

[52] 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.

[53] 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.

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.[54]

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.[55] 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.

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

The end of each tower section is covered with a tarp prior to being moved to the storage area for pick-up by the customer. Shipment of the tower sections to the wind project site is usually arranged by the OEM customer.[56]

[54] Staff conference transcript, pp. 19-20 (Janda); pp. 19-20, 80-81 (Janda). Staff 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. Staff 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.

[55] Staff conference transcript, p. 21 (Janda).

[56] Staff conference transcript, pp. 22-23 (Janda); pp. 48, 89 (Cole); p. 117 (Pellerin); Petitioners' postconference brief, pp. 20-21; Marmen's postconference brief, p. 42; Vesta's postconference brief, pp. 1-2.

Post-manufacturing

Transportation

Tower sections are usually transported by truck when the wind project site is within *** away from the storage yard.[57] 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 (table I-2).

Table I-2
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.

Assembly

At the wind project site, the base section of the tower is lifted by a crane and lowered straight down onto the foundation, over a power unit that sits in the base of the tower (figure I-6). The flange at the base of the tower is attached to the foundation 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 (blades and hub) assembly is attached to the generator shaft protruding from the front of the nacelle.

[57] Marmen's postconference brief, exh. 1: Responses to Staff Conference Questions, p. 1.

Figure I-6
Wind towers: Turbine installation

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

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. No issues with respect to domestic like product have been raised in these investigations.[58] Petitioners contend that wind towers constitute a single domestic like product coextensive with the scope of these investigations.[59] For purposes of the preliminary phase of these investigations, respondents stated that they do not dispute the domestic like product as proposed in the petition.[60]

[58] In the prior related investigations, respondent Siemens argued that wind towers produced for its turbines were unique and should be a separate like product. See *Utility Scale Wind Towers from China and Vietnam, Investigation Nos. 701-TA-486 and 731-TA-1195-1196 (Preliminary)*, USITC Publication 4304, February 2012, p. 8. The Commission found no significant differences between the physical characteristics, uses, and methods of production of the wind towers Siemens purchases and other original equipment manufacturers ("OEMs") purchase. Consequently, the Commission found that all wind towers within the scope of the investigations constituted a single domestic like product. See *Utility Scale Wind Towers from China and Vietnam, Investigation Nos. 701-TA-486 and 731-TA-1195-1196* (Preliminary), USITC Publication 4304, February 2012, p. 8. In the subsequent five-year review, the domestic interested party agreed with the Commission's definition of the domestic like product as determined in the prior original investigation. See *Utility Scale Wind Towers from China and Vietnam*, *Investigation Nos. 701-TA-486 and 731-TA-1195-1196 (Review)*, USITC Publication 4888, April 2019, p. 7. No other interested party provided further comment on domestic like product.

[59] Petition, p. 8.

[60] Respondent Marmen's postconference brief at 4.

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. 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 purchasers surveyed by the Commission, transportation costs are an important purchasing factor.

Apparent U.S. consumption of wind towers decreased during 2016-18, but was higher in January-March 2019 than in January-March 2018. Wind turbine consumption remains well above its levels in 2013-14, and most market participants expect strong demand for wind towers through at least 2020. (See "Demand for wind turbines," below.)

Four U.S. producers and five U.S. importers stated that there had been changes in the product range, mix, or marketing of wind towers since January 1, 2016, citing an increase in larger, heavier towers that can support turbines with more generating capacity. Importer/purchaser *** described technological innovations to its turbines as a product change. Importer *** 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. One U.S. producer and two U.S. importers stated that there had not been any changes in the product range, mix, or marketing of wind towers since January 1, 2016.

Market structure

Wind turbine manufacturers purchase U.S.-produced wind towers as well as importing wind towers themselves, and also sometimes buy from unrelated importers. Thus, wind tower

[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.

purchasers' purchasing 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.[2] These four U.S. wind turbine manufacturers sell wind turbines to a project market (utilities and developers) with many downstream purchasers.[3]

CHANNELS OF DISTRIBUTION

U.S. producers and importers of wind towers reported that all of their shipments were to end users. No wind tower supplier reported any shipments to distributors.

GEOGRAPHIC DISTRIBUTION

According to petitioner Arcosa, the vast majority of U.S. wind tower projects are in the "wind corridor" of the central United States, i.e., from Texas up to Canada between the Colorado and Mississippi Rivers.[4] U.S. and Canadian producer Marmen stated that its Canadian facilities supply the Northeast region of the United States, where it stated that it does not face competition from subject imports from Asia, but rather from imports from Spain.[5]

A majority of both U.S. producers' and subject importers' wind towers were shipped between 101 and 1,000 miles from the production facility or U.S. point of shipment. For U.S. producers, 19 percent of sales were within 100 miles of their production facility, 75 percent were between 101 and 1,000 miles, and 6 percent were over 1,000 miles. Importers sold 27 percent within 100 miles of their U.S. point of shipment, 63 percent between 101 and 1,000 miles, and 10 percent over 1,000 miles.

U.S. producers reported selling wind towers to the Midwest, Central Southwest, and Mountain regions, with very few sales in other regions. Importers of Canadian wind towers reported shipping to the Northeast and Midwest, while importers of Indonesian and Korean wind towers reported shipping primarily to the Midwest, Central Southwest, and Mountain regions. Importers of Vietnamese product shipped to the Southeast and Pacific Coast. Importers of Korean product also had some shipments to the Pacific Coast. Table II-1 shows the estimated share of U.S. producers' and importers' shipments of product by region, weighted by their total commercial shipments in 2018.[6]

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[2] See import data in Part IV, and customers listed in U.S. producers' questionnaires.

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

[4] Conference transcript, p. 49 (Cole).

[5] Conference transcript, p. 120 (Pellerin).

[6] U.S. and Canadian producer Marmen described the data underlying this table as (1) not showing that in 2018 and the first quarter of 2019, the geographic overlap between Canadian and Asian wind towers was lower than in 2016 and 2017, and (2) combining data from many states in the "Midwest" category, and not capturing that Marmen sells Canadian material only to the Great Lakes region of the Midwest category. Marmen's postconference brief, p. 23.

Table II-1
Wind towers: Geographic market areas in the United States served by U.S. producers and importers

* * * * * * *

U.S. producers and importers were asked to describe the importance of geographic location in their firm's sales of wind towers. Most responding importers described geographic location as important to total delivered cost,[7] since the cost of transporting large and heavy wind towers is substantial. For example, *** described such high inland transportation costs that different regions of the United States could be regarded as different markets. *** stated that having a wind site location close to the coast decreases the total delivered cost, especially in the *** region. U.S. producers, many of which do not arrange transportation of wind towers (see "U.S. inland transportation costs," in Part V), often did not respond to the question. *** described the high transportation costs of wind towers as making geographic markets very important, and added that ***. However, *** stated that, although transportation costs vary by location, it had lost volume to imports at projects for which it was the closest supplier.

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.

[7] 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.

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, 2018 (percent)		Able to shift to alternate products
	2016	2018	2016	2018	2016	2018	Home market shipments	Exports to non-U.S. markets	No. of firms reporting "yes"
United States	3,854	4,136	80.1	64.8	3.4	6.9	100.0	--	3 of 6
Canada	***	***	***	***	***	***	***	***	0 of 2
Indonesia	***	***	***	***	***	***	***	***	0 of 1
Korea	***	***	***	***	***	***	***	***	0 of 2
Vietnam	***	***	***	***	***	***	***	***	0 of 1

Note.—Responding U.S. producers accounted for all or nearly all U.S. production of wind towers in 2018. Responding foreign producer/exporter firms accounted for all or nearly all U.S. imports of wind towers from Canada, Indonesia, Korea, and Vietnam in 2018. 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. The main contributing factor to this degree of responsiveness of supply is the availability of unused capacity,[8] limited by *** export shipments and low inventory levels.

Subject imports from Canada

Based on available information, producers of wind towers from Canada have the ability to respond to changes in demand with moderately 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 is the availability of unused capacity (according to its questionnaire data) and the existence of some inventories, and limited by very low exports to non-U.S. markets. Marmen stated that it was operating at full capacity and that the capacity fluctuations in its data are due to different sized towers being produced.[9]

[8] The analysis in this section is based on data reported in U.S. producers' questionnaires. Parties differ over whether the U.S. industry has sufficient unused capacity to supply U.S. demand. See "Supply constraints" below.

[9] Conference transcript, pp. 127-28 (Pellerin) and p. 139 (Kao).

Subject imports from Indonesia

Based on available information, producers of wind towers from Indonesia 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 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 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 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, producers of wind towers from Vietnam have the ability to respond to changes in demand with 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 and the ability to shift shipments from alternate markets.

Imports from nonsubject sources

Nonsubject imports accounted for approximately one-eighth of total U.S. imports in 2018. The largest sources of imports from nonsubject countries under HTS statistical reporting number 7308.20.0020 during January 2016-March 2019 were Spain and Mexico, although imports from Spain fell over 2016-18.

Supply constraints

Five U.S. producers and four U.S. importers indicated that they had not refused or been unable to supply wind towers since January 1, 2016. *** indicated that it had supply constraints because demand was higher than its capacity. *** listed several instances of difficulties in obtaining product from several U.S. producers: ***. It added that the ***. Two other importers also indicated that, due to limited capacity, they had declined large orders.

U.S. demand

Based on available information, the overall demand for wind towers is likely to experience small-to-moderate 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 AWEA, however, alleges that duties on wind towers could result in a significant reduction in U.S. demand for wind turbines, and in turn, wind towers.[10]

End uses and cost share

Wind towers are used exclusively in wind turbines. U.S. producers and importers generally estimated that wind towers accounted for 20 to 25 percent of the cost of wind turbines.

Demand for wind turbines

According to a recent U.S. Department of Energy ("DOE") report, U.S. wind power capacity continued to experience strong growth in 2017 as a result of government incentives and improvements in the cost and performance of wind power technologies. However, the DOE notes that growth in the wind power market beyond 2020 is uncertain because of declining tax support, expectations for low natural gas prices, and modest growth in demand for electricity.[11]

U.S. utility-scale wind turbine installations declined from 8.2 GW in 2016 to 7.0 GW in 2017, and then increased to 7.6 GW in 2018 (figure II-1). Installations were projected to increase through 2020. 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. At the end of 2018, 16.5 GW of wind projects were under construction and 18.6 GW were in an advanced stage of development.[12] Arcosa stated that industry forecasts are for 2020 to have demand in the range of 12-13 GW, but for demand to fall to 3 GW per year by 2022.[13] On the other hand, the AWEA and Marmen predicted that wind turbine demand would remain strong because of environmental concerns and the decreasing cost of wind energy production.[14]

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[10] AWEA's postconference brief, p. 10.

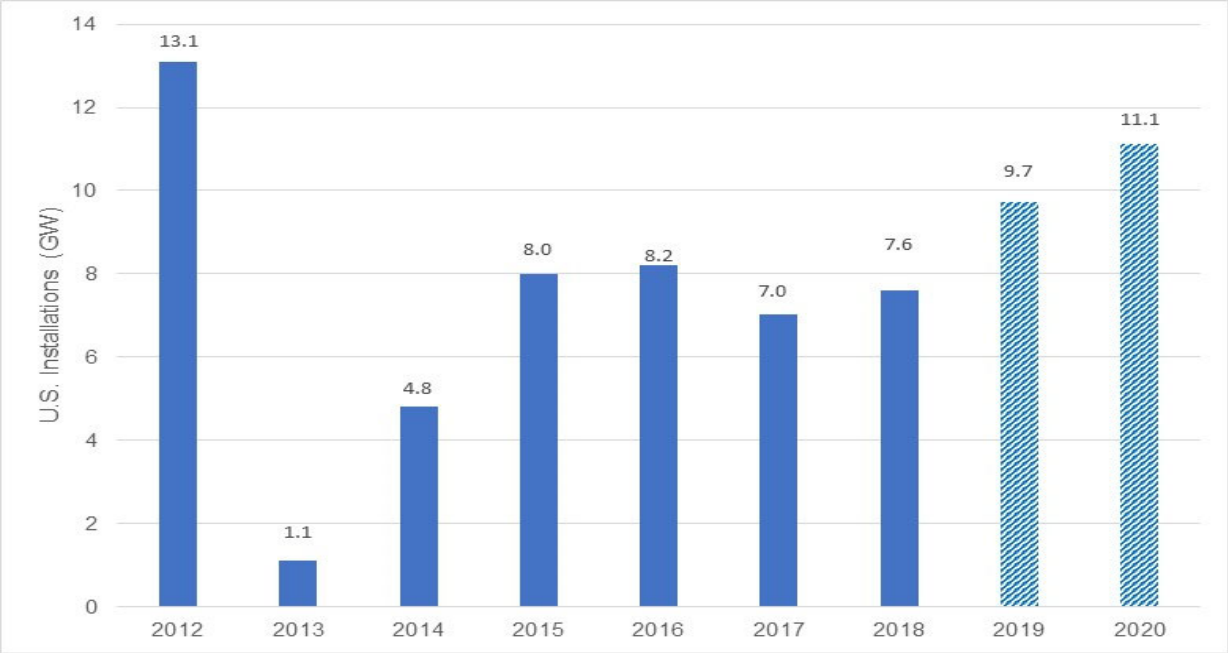
[11] *Utility Scale Wind Towers from China and Vietnam*, *Inv. Nos. 701-TA-486 and 731-TA-1195-1196 (Review)*, USITC Publication 4888, April 2019, p. II-1.

[12] *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-6-7.

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

[14] Conference transcript, pp. 149-151 (Farrell and Pellerin), and Marmen's postconference brief, pp. 25-27.

Figure II-1
Wind towers: U.S. utility-scale wind turbine installations, 2012-18 (actual), and forecasted installations, 2019-20



Source: AWEA, U.S. Wind Industry First Quarter 2019 Market Report, p. 5 https://www.awea.org/resources/publications-and-reports/market-reports/2019-u-s-wind-industry-market-reports/q12019_marketreport ; *Utility Scale Wind Towers from China and Vietnam*, *Inv. Nos. 701-TA-486 and 731-TA-1195-1196 (Review)*, USITC Publication 4888, April 2019, Figure II-3.

Note.-- Forecast installations for 2019 and 2020 are the average forecast installation for several sources as reported in the 2017 Wind Technologies Market Report.

Wind turbine prices have continually declined over the past decade (despite the shift toward larger towers) after peaking in 2008-09, such that wind turbines prices in 2017 were similar to prices in the early 2000s. Wind power installed project costs similarly declined over this time period, and declined from $2,081/kW in 2012 to $1,611/kW in 2017.[15]

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.[16] The PTC, a major factor in wind turbine installations, has been renewed three times since the end of 2012, but each time there was a

[15] *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-7.

[16] *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.

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. The PTC has been extended through the end of 2019, but the value of the tax credit is phased down in each year.[17]

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

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.

Wind projects were 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 scale down at the same rate as the PTC after 2016.[18]

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

[17] *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.

[18] *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.

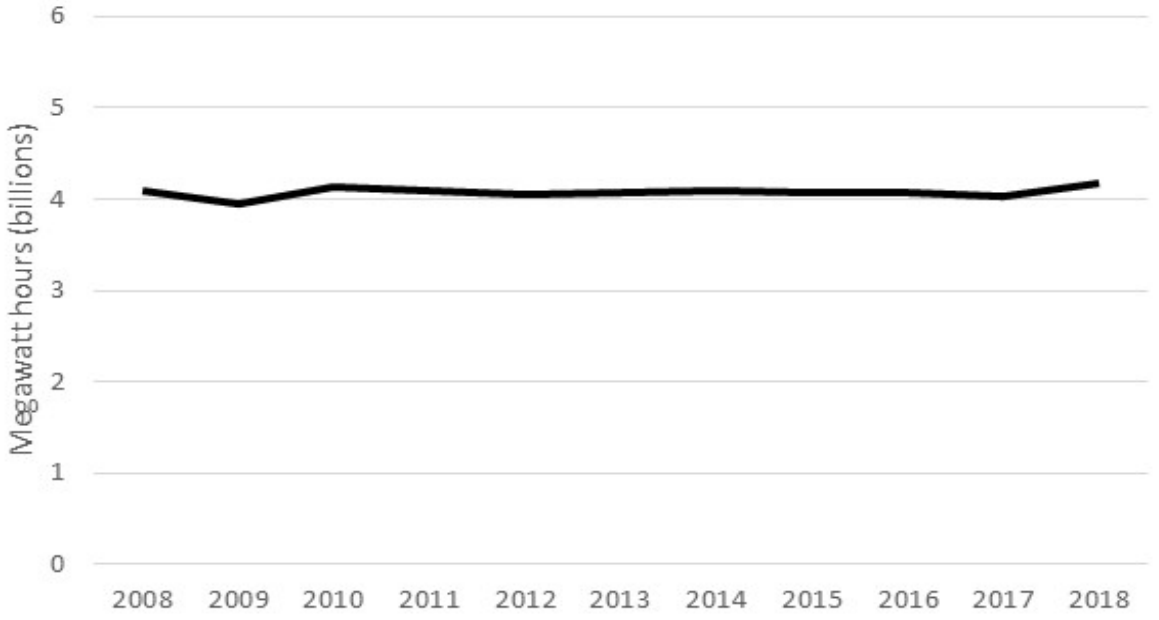
projects completed in 2018 are eligible for 40 percent and projects completed in 2019 are eligible for 30 percent.[19]

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 July 2017, the same number as in June 2013. Nine states increased the share of energy required from renewable sources, Vermont added a mandatory RPS, Ohio extended the deadline for its RPS, and Kansas changed its mandatory RPS to a voluntary goal.[20]

Wind-generated electricity demand

One factor affecting the demand for wind turbines is the demand for electricity. 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).

Figure II-2
U.S. electric power generation, 2008-18



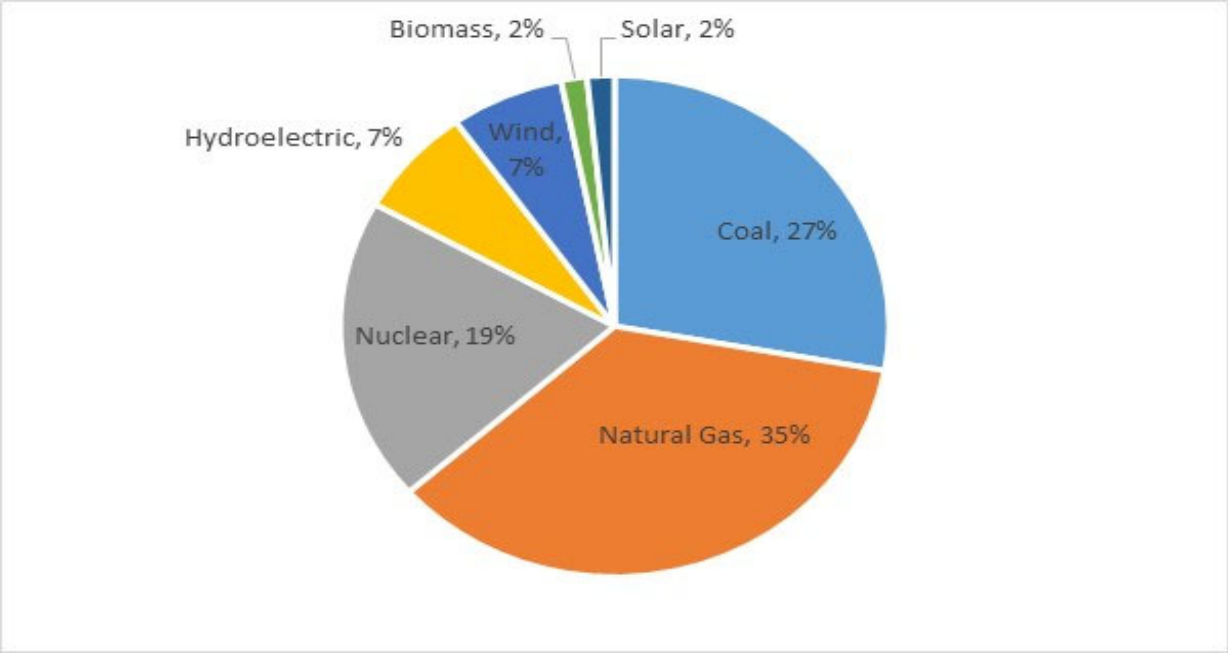
Source: U.S Energy Information Administration, cited in *Utility Scale Wind Towers from China and Vietnam, Inv. Nos. 701-TA-486 and 731-TA-1195-1196 (Review)*, USITC Publication 4888, April 2019, p. II-11; and Energy Information Administration, "Net Generation by Energy Source", https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_1_01 , July 22, 2019.

[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.

[20] *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.

Electricity demand in the United States is supplied primarily by conventional sources,[21] with coal and natural gas accounting for almost two-thirds of all U.S. electricity generated in 2018 (figure II-3). Wind energy accounted for 7 percent of total electricity generated in 2018. 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 23 percent of all new electric generating capacity installed in the United States in 2018 (figure II-4).

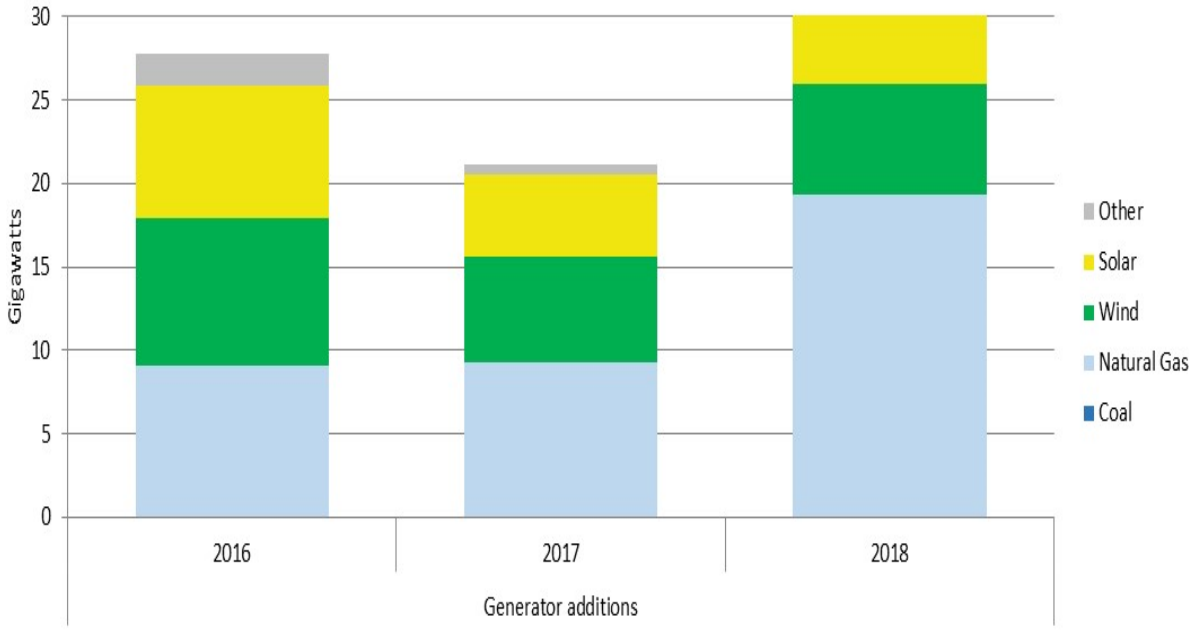
Figure II-3
Net U.S. electricity generation, by sector, 2018



Source: U.S. Energy Information Administration, https://www.eia.gov/electricity/data/browser/, retrieved March 18, 2019; confirmed August 22, 2019.

[21] *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-4
New U.S. electrical generating capacity by type, yearly, 2016-18



Source: U.S Energy Information Administration, cited in *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.

Another factor affecting wind turbine demand is the cost of competing sources of energy. One measure of the competitiveness of energy sources is the levelized cost of energy ("LCOE").[22] The Energy Information Administration's (EIA) estimates of the average LCOE for new plants entering service in 2023 are shown in table II-4. 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.[23]

[22] 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.

[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, pp. II-10-11.

Table II-4
Estimated U.S. capacity-weighted average LCOE for plants entering service in 2023, (2018 $/MWh)

	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 steadily declined since 2009 and have continued to decline since 2016. Average capacity-weighted power purchase agreement ("PPA") prices declined from $39/MWh for those signed in 2012 to $19/MWh for those signed in 2017 (table II-5). 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.[24] Natural gas prices have declined since 2009 and have fluctuated within a lower range since 2016.

Table II-5
Nationwide power purchase agreement ("PPA") prices for wind-generated electricity, by date of PPA signing, in real 2017 dollars, and U.S. natural gas electric power price

PPA Execution Year / Year	PPA price ($/MWh)	Natural gas price (dollars per thousand cubic feet)
2009	70.86	4.93
2010	61.61	5.27
2011	44.33	4.89
2012	38.97	3.54
2013	27.79	4.49
2014	24.68	5.19
2015	28.40	3.38
2016	26.65	2.99
2017	18.91	3.52
2018	n.a.	3.67

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, Tables II-6 and II-7.

[24] *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.

Business cycles

Five 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, was a strong driver of increased demand expected in 2019 and 2020. *** added that U.S. wind turbine demand (a principal driver of wind tower 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. U.S. producer *** stated that the U.S. market was vulnerable to spikes in imports.[25] However, two importers indicated that the wind tower market was not subject to unique business cycles.

Four U.S. producers and five importers indicated that there had been changes to the business cycle for wind towers since January 1, 2016, generally citing the PTC. Other firms cited the same issues noted above, i.e., seasonal variation and import increases. One U.S. producer and one importer 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, 2016 (table II-6). *** 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 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, and an increased interest in renewable energy. Petitioners characterized certain countries' markets as "closed to

[25] 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. However, U.S. importer *** stated that there are usually more installations in the third and fourth quarters of the year.

exports" because of local content requirements.[26] They added that demand in Canada had decreased substantially of late.[27]

Table II-6
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	3	1	0	2
Importers	5	0	0	2
Demand outside the United States				
U.S. producers	2	0	0	4
Importers	5	1	0	1

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

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. 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, but purchaser/importers often described factors other than price, including transportation costs, as very important in comparing U.S.-produced wind towers to wind towers imported from subject countries.

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

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

Lead times

Wind towers are primarily produced-to-order. All responding U.S. producers and importers[28] reported that 100 percent of their commercial shipments were produced-to-order. U.S. producers reported lead times between 100 to 150 days, while importers reported lead times between 180 to 270 days.

Factors affecting purchasing decisions

Purchasers responding to lost sales lost revenue allegations[29] were asked to identify the three main purchasing factors their firm considered in their purchasing decisions for wind towers. *** responded; *** did not provide a usable response.

Purchasers generally emphasized quality and total delivered cost (i.e., including transportation costs) as the most important purchasing factors. As the most important purchasing factor, three purchasers (***) listed quality, and one firm (***) listed total delivered cost (i.e., price plus transportation cost). As the second most important purchasing factor, three firms (***) named production capacity (sometimes including production pace and flexibility), and one firm (***) listed site proximity and transportation costs. As the third most important factor, two firms (***) listed total delivered cost, one firm (***) listed price and contract provisions, and firm (***) listed quality. Purchasers also listed other important factors, such as expertise, relationships with raw materials suppliers, risk sharing in contract provisions, and best mode of transportation.

Regarding qualification, U.S. producer Arcosa stated that, while purchasers often have a qualification process, these processes are usually consistent across purchasers, may be completed after a bid process is over, and is "not exceedingly difficult."[30]

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/or Vietnam, U.S. producers and importers were asked whether the products can always, frequently, sometimes, or never be used interchangeably. As shown in table II-7, most U.S. producers and importers described wind towers from different sources as always interchangeable.

In additional comments, *** stated that the wind towers it uses are built to its specifications, and thus are interchangeable from different sources if they are built to specifications by qualified suppliers. However, it added that some producers cannot meet specifications for some models, and thus their product is not interchangeable with product that does meet specification. As an example, it stated that ***. ***.

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[28] Several firms (***) did not provide usable responses.

[29] This information is compiled from responses by purchasers identified by Petitioners or other U.S. producers to the lost sales lost revenue allegations. See Part V for additional information.

[30] Conference transcript, p. 28 (Cole).

Table II-7
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 U.S. importers reporting			
	A	F	S	N	A	F	S	N
U.S. vs. subject countries:								
U.S. vs. Canada	4	1	1	0	4	0	1	0
U.S. vs. Indonesia	4	2	0	0	5	0	1	0
U.S. vs. Korea	4	2	0	0	5	0	1	0
U.S. vs. Vietnam	4	2	0	0	4	0	1	0
Subject countries comparisons:								
Canada vs. Indonesia	4	1	1	0	4	0	1	0
Canada vs. Korea	4	1	1	0	4	0	1	0
Canada vs. Vietnam	4	1	1	0	4	0	1	0
Indonesia vs. Korea	4	2	0	0	4	0	1	0
Indonesia vs. Vietnam	4	2	0	0	4	0	1	0
Korea vs. Vietnam	4	2	0	0	4	0	1	0
Nonsubject countries comparisons:								
U.S. vs. nonsubject	4	2	0	0	4	0	1	0
Canada vs. nonsubject	4	1	1	0	4	0	1	0
Indonesia vs. nonsubject	4	2	0	0	4	0	1	0
Korea vs. nonsubject	4	2	0	0	4	0	1	0
Vietnam vs. nonsubject	4	2	0	0	4	0	1	0

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

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

In addition, producers and importers 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-8, most U.S. producers described non-price differences between wind towers from different sources as sometimes or never significant, but most importers described such differences as always or frequently significant. U.S. importer/ purchaser *** described quality, availability, lead time, reliability of supply, technical ability of the supplier, and transportation costs as baseline factors that it prioritized above price. Other importers and importer/purchasers named those factors, and/or production pace and flexibility as significant non-price factors. U.S. importer/purchaser *** stated that while price is a factor in purchasing, other important factors included on-time delivery, lifecycle operation and maintenance cost, ability to produce wind under specific conditions (which can depend on tower height), and meeting qualifications. It added that ***.

Table II-8
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 U.S. importers reporting			
	A	F	S	N	A	F	S	N
U.S. vs. subject countries:								
U.S. vs. Canada	0	2	2	2	2	2	0	0
U.S. vs. Indonesia	0	1	2	2	2	4	0	0
U.S. vs. Korea	0	1	2	2	2	2	1	0
U.S. vs. Vietnam	0	1	2	2	2	2	0	0
Subject countries comparisons:								
Canada vs. Indonesia	0	2	2	2	2	1	1	0
Canada vs. Korea	0	2	2	2	2	1	1	0
Canada vs. Vietnam	0	2	2	2	2	1	1	0
Indonesia vs. Korea	0	1	2	2	2	1	2	0
Indonesia vs. Vietnam	0	1	2	2	2	1	1	0
Korea vs. Vietnam	0	1	2	2	2	1	1	0
Nonsubject countries comparisons:								
U.S. vs. nonsubject	0	1	2	2	2	1	0	0
Canada vs. nonsubject	0	2	2	2	2	1	0	0
Indonesia vs. nonsubject	0	1	2	2	2	1	0	0
Korea vs. nonsubject	0	1	2	2	2	1	0	0
Vietnam vs. nonsubject	0	1	2	2	2	1	0	0

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

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

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 or nearly all U.S. production of wind towers during 2018.

U.S. PRODUCERS

The Commission issued a U.S. producer questionnaire to six firms based on information contained in the petition. Six firms provided usable data on their productive operations. As noted above, staff believes that these responses represent all or nearly all 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, 2018

Firm	Position on petition	Production location(s)	Share of production (percent)
Arcosa	Petitioner	Clinton, IL Newton, IA Tulsa, OK West Fargo, ND	***
Broadwind	Petitioner	Abilene, TX Manitowoc, WI	***
GRI Towers	***	Amarillo, TX	***
Marmen	***	Brandon, SD	***
Ventower	***	Monroe, MI	***
Vestas Towers ("Vestas")	***	Pueblo, CO	***
Total			***

Note.--***.

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

Table III-2 presents information on U.S. producers' ownership, related and/or affiliated firms 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.

As indicated in table III-2, *** are related to foreign wind tower producers. *** is related to a U.S. importer of wind towers.[1] No U.S. producers reported purchasing wind towers from U.S. importers.

Domestic 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, 2016. All six domestic producers indicated that they had experienced such changes; their responses are presented in table III-3.

[1] In follow-up correspondence, *** reported that ***.

Table III-3
Wind towers: U.S. producers' reported changes in operations since January 1, 2016

Item / Firm	Reported changed in operations
Plant openings:	
***	***
Plant closings:	
***	***
Expansions:	
***	***
***	***.
***	***
Prolonged shutdowns or curtailments:	
***	***
***	***
***	***
Revised labor agreements:	
***	***
Other:	
***	***
***	***
***	***
***	***

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

U.S. PRODUCTION, CAPACITY, AND CAPACITY UTILIZATION

Table III-4 and figure III-1 present U.S. producers' production, capacity, and capacity utilization. Reported capacity increased overall, as ***. U.S. producers' capacity increased by 7.3 percent during 2016-18, and was higher by 2.0 percent in January-March 2019 than in January-March 2018. U.S. producers' total wind tower production, however, declined by 13.3 percent during 2016-18, as *** experienced declining output, but was higher by 16.3 percent in January-March 2019 than in January-March 2018. Capacity utilization declined overall during 2016-18 by 15.3 percentage points, but was higher by 8.7 percentage points in January-March 2019 than in January-March 2018, as limited new capacity was more than offset by higher output reported by ***.

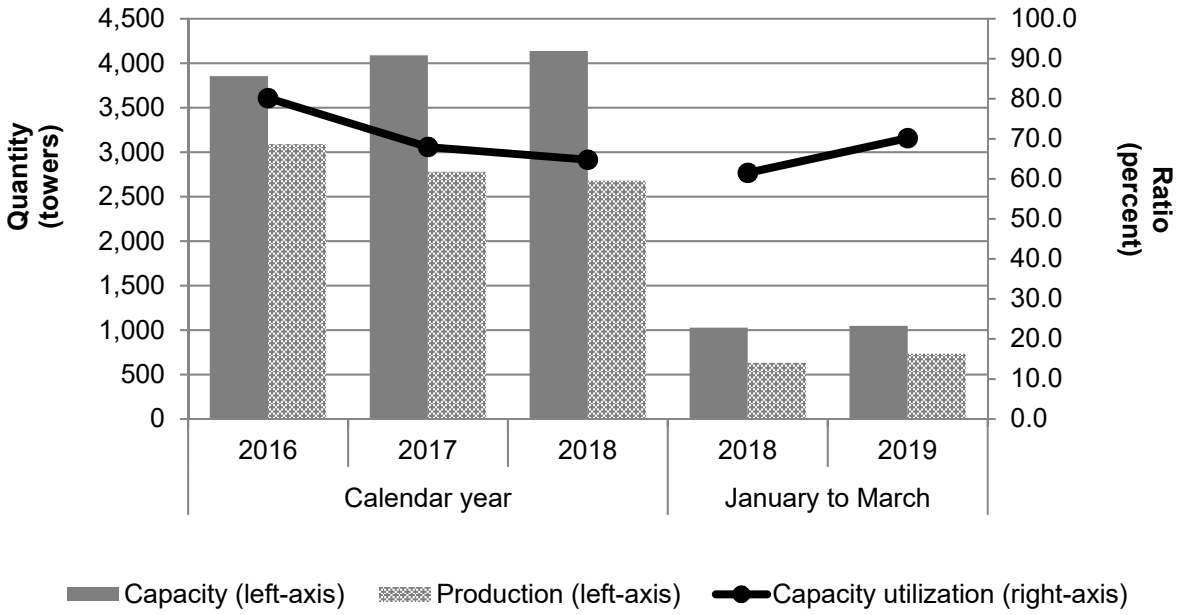
Table III-4
Wind towers: U.S. producers' production, capacity, and capacity utilization, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	2018	2019
	Capacity (towers)				
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Total capacity	3,854	4,089	4,136	1,026	1,046
	Production (towers)				
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Total production	3,087	2,765	2,679	631	734
	Capacity utilization (percent)				
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Average capacity utilization	80.1	67.6	64.8	61.5	70.2

Note.--With regard to capacity utilization, ***.

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

Figure III-1
Wind towers: U.S. producers' production, capacity, and capacity utilization, 2016-18, January-March 2018, and January-March 2019



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

Expected production

Six firms reported their expected production based on order books. These data are presented in table III-5.

Table III-5
Wind towers: Producers' expected production based on order books, April 2019-September 2020

Item	Period					
	Apr-Jun 2019	Jul-Sep 2019	Oct-Dec 2019	Jan-Mar 2020	Apr-Jun 2020	Jul-Sep 2020
	Quantity (towers)					
Expected production	751	791	816	819	842	736

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

Constraints on capacity

Five of the six responding U.S. producers reported constraints in the manufacturing process. Constraints in the manufacturing process include labor, limitations of equipment, length of time required for various stages of production, and tower type and size. U.S. producer ***.

Alternative products

No firms reported producing out-of-scope products on the same equipment as subject product.

U.S. PRODUCERS' U.S. SHIPMENTS AND EXPORTS

Table III-6 presents U.S. producers' U.S. shipments, export shipments, and total shipments. U.S. producers' U.S. shipments by quantity decreased by 13.4 percent during 2016-18, but were higher by 6.6 percent in January-March 2019 than in January-March 2018. U.S. producers' U.S. shipments by value decreased by 13.9 percent during 2016-18, but were higher by 6.3 percent during January-March 2019 than in January-March 2018. Average unit values decreased by 0.5 percent during 2016-18, and were lower by 0.3 percent during January-March 2019 than in January-March 2018.

Table III-6
Wind towers: U.S. producers' U.S. shipments, exports shipments, and total shipments, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	2018	2019
	Quantity (towers)				
Commercial U.S. shipments	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
U.S. shipments	3,118	2,666	2,699	668	712
Export shipments	---	---	---	---	---
Total shipments	3,118	2,666	2,699	668	712
	Value (1,000 dollars)				
Commercial U.S. shipments	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
U.S. shipments	1,008,336	846,177	868,294	209,189	222,313
Export shipments	---	---	---	---	---
Total shipments	1,008,336	846,177	868,294	209,189	222,313
	Unit value (dollars per tower)				
Commercial U.S. shipments	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
U.S. shipments	323,392	317,396	321,710	313,157	312,237
Export shipments	---	---	---	---	---
Total shipments	323,392	317,396	321,710	313,157	312,237
	Share of quantity (percent)				
Commercial U.S. shipments	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
U.S. shipments	100.0	100.0	100.0	100.0	100.0
Export shipments	---	---	---	---	---
Total shipments	100.0	100.0	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	100.0	100.0
Export shipments	---	---	---	---	---
Total shipments	100.0	100.0	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–[2]

> *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-6 above, in 2018 internal consumption accounted for *** percent of U.S. producers' U.S. shipments of wind towers by quantity and *** percent of U.S. producers' U.S. shipments of wind towers by value, with Vestas accounting for *** of these transfers.[3] Commercial shipments comprised the majority of U.S. shipments.

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. producers reported internal consumption of wind towers for the production of wind turbines. Vestas was *** transfers of wind towers, ***.[4]

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

[3] Vestas reported related transfers to ***, which accounted for *** such shipments during the period for which data were collected. These transfers made up *** reported total shipments.

[4] ***.

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, U.S. producers reported that wind towers reportedly comprise between 20 and 25 percent of the finished cost of wind turbines. See *Part II* for additional information related to cost share.[5]

U.S. PRODUCERS' INVENTORIES

Table III-7 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**.** U.S. producers' inventories of wind towers increased by *** percent during 2016-18, and were higher by *** percent in January-March 2019 than in January-March 2018. The ratio of inventories to total shipments ranged between *** percent and *** percent during 2016-18, and exceeded *** in January-March 2019.

Table III-7
Wind towers: U.S. producers' inventories, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	2018	2019
	Quantity (towers)				
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.

U.S. PRODUCERS' IMPORTS AND PURCHASES

As shown in table III-8, U.S. producer Vestas was the only U.S. producer that reported imports of wind towers through a related firm.

[5] See also *Utility Scale Wind Towers from China and Vietnam*, *Investigation Nos. 701-TA-486 and 731-TA-1195-1196 (Final)*, USITC Publication 4372, February 2013, pp. I-9 and III-11, footnote 46.

Table III-8
Wind towers: U.S. producer Vestas's U.S. production and imports, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	2018	2019
	Quantity (towers)				
Vestas's U.S. production	***	***	***	***	***
Vestas's U.S. imports from.--					
***	***	***	***	***	***
***	***	***	***	***	***
Subject sources	***	***	***	***	***
Nonsubject sources (***)	***	***	***	***	***
All imports sources	***	***	***	***	***
	Ratio (percent)				
Vestas's ratio to U.S. production of imports from.--					
***	***	***	***	***	***
***	***	***	***	***	***
Subject sources	***	***	***	***	***
Nonsubject sources (***)	***	***	***	***	***
All imports sources	***	***	***	***	***
	Narrative				
Vestas's reason for importing	***				

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

U.S. EMPLOYMENT, WAGES, AND PRODUCTIVITY

Table III-9 shows U.S. producers' employment-related data. The number of production and related workers ("PRWs") decreased by 3.8 percent during 2016-18, and was 2.7 percent lower in January-March 2019 than in January-March 2018. Wages increased by 1.1 percent during 2016-18, but were 0.5 percent lower in January-March 2019 than in January-March 2018. Hourly wages increased by 5.5 percent during 2016-18. Productivity decreased by 9.4 percent during 2016-18, and was higher in January-March 2019 than in January-March 2018. Unit labor costs increased by 16.5 percent during 2016-18, but were lower by 14.5 percent in January-March 2019 than in January-March 2018. GRI reported ***, and attributed *** during 2017-18 to its ramp-up period.

Table III-9
Wind towers: U.S. producers' employment related data, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	2018	2019
Production and related workers (PRWs) (number)	2,241	2,312	2,155	2,166	2,108
Total hours worked (1,000 hours)	4,608	4,858	4,415	1,135	1,114
Hours worked per PRW (hours)	2,056	2,101	2,049	524	528
Wages paid ($1,000)	155,061	159,900	156,794	38,907	38,696
Hourly wages (dollars per hour)	$33.65	$32.91	$35.51	$34.28	$34.74
Productivity (towers per 10,000 hours)	6.7	5.7	6.1	5.6	6.6
Unit labor costs (dollars per towers)	$50,230	$57,830	$58,527	$61,659	$52,719

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 questionnaires to nine firms believed to be importers of subject wind towers, as well as to all U.S. producers of wind towers in 2018.[1] Usable questionnaire responses were received from seven companies, while two firms indicated that they had not imported wind towers since 2016. Usable questionnaire responses represented approximately[2] *** percent of imports from Canada and Korea, nearly all imports from Indonesia and Vietnam, and the vast majority of nonsubject imports between 2016 and 2018 of subject merchandise entered under HTS subheading 7308.20.0020, a provision that includes subject wind towers as well as other products. 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 2018.

Table IV-1
Wind towers: U.S. importers, their headquarters, and share of total imports by source, 2018

		Share of imports by source (percent)						
Firm	Headquarters	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	***	***	***	***	***	***	***
Goldwind	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 subheading 7308.20.0020 in 2018.

[2] Import coverage was calculated based on data reported in Commission-issued questionnaires.

[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. Total U.S. imports, by quantity, decreased overall by *** percent during 2016-18. U.S. imports of wind towers from Canada decreased by *** percent during 2016-18, but were higher by *** percent in January-March 2019 than in January-March 2018. U.S. imports of wind towers from Indonesia increased by *** percent during 2016-18, and were lower by *** percent in January-March 2019 compared to January-March 2018. U.S. imports of wind towers from Korea decreased by *** percent during 2016-18.[4] U.S. imports of wind towers from Vietnam decreased by *** percent during 2016-18.[5] Total imports from subject sources, by quantity, decreased by 23.8 percent during 2016-18. Import sources other than Canada, Indonesia, Korea, and Vietnam included China, Italy, Mexico, and Spain. As a share of quantity of total imports, subject imports ranged from *** to *** percent during 2016-18, and *** in January-March 2019 and in January-March 2018.

The aggregate average unit value of subject imports from Canada increased by *** percent during 2016-18, and was higher by *** percent in January-March 2019 than in January-March 2018.[6] Aggregate average unit values of subject imports from Indonesia decreased by *** percent during 2016-18, but were higher by *** percent in January-March 2019 than in January-March 2018. Aggregate average unit values of subject imports from Korea increased by *** percent during 2016-18. The aggregate average unit value of subject imports from Vietnam decreased by *** percent during 2016-18. As a whole, the aggregate average unit value of subject imports from all subject sources increased by 1.3 percent during 2016-18, but was lower by 0.6 percent in January-March 2019 than in January-March 2018. The ratio of subject imports from all subject sources to U.S. production decreased from 38.3 percent to 31.7 percent from 2016 to 2018, but was higher by 15.1 percentage points in January-March 2019 than in January-March 2018.

[4] Subject imports from Korea ***.

[5] Subject imports from Vietnam ***.

[6] ***.

Table IV-2
Wind towers: U.S. importers by source, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	2018	2019
	Quantity (towers)				
U.S. imports from.--					
Canada	***	***	***	***	***
Indonesia	***	***	***	***	***
Korea	***	***	***	***	***
Vietnam	***	***	***	***	***
Subject sources	1,182	912	848	125	256
Nonsubject sources	***	***	***	***	***
All import sources	***	***	***	***	***
	Value (1,000 dollars)				
U.S. imports from.--					
Canada	***	***	***	***	***
Indonesia	***	***	***	***	***
Korea	***	***	***	***	***
Vietnam	***	***	***	***	***
Subject sources	335,484	249,441	249,039	32,228	65,626
Nonsubject sources	***	***	***	***	***
All import sources	***	***	***	***	***
	Unit value (dollars per tower)				
U.S. imports from.--					
Canada	***	***	***	***	***
Indonesia	***	***	***	***	***
Korea	***	***	***	***	***
Vietnam	***	***	***	***	***
Subject sources	283,827	273,510	293,678	257,824	256,352
Nonsubject sources	***	***	***	***	***
All import sources	***	***	***	***	***
	Share of quantity (percent)				
U.S. imports from.--					
Canada	***	***	***	***	***
Indonesia	***	***	***	***	***
Korea	***	***	***	***	***
Vietnam	***	***	***	***	***
Subject sources	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
All import sources	100.0	100.0	100.0	100.0	100.0

Table continued on next page.

Table IV-2, continued
Wind towers: U.S. importers by source, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	2018	2019
	Share of value (percent)				
U.S. imports from.-- Canada	***	***	***	***	***
Indonesia	***	***	***	***	***
Korea	***	***	***	***	***
Vietnam	***	***	***	***	***
Subject sources	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
All import sources	100.0	100.0	100.0	100.0	100.0
	Ratio to U.S. production (percent)				
U.S. imports from.-- Canada	***	***	***	***	***
Indonesia	***	***	***	***	***
Korea	***	***	***	***	***
Vietnam	***	***	***	***	***
Subject sources	38.3	33.0	31.7	19.8	34.9
Nonsubject sources	***	***	***	***	***
All import sources	***	***	***	***	***

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

Figure IV-1
Wind towers: U.S. import volumes and unit values, 2016-18, January-March 2018, and January-March 2019

* * * * * * *

NEGLIGIBILITY

The statute requires that an investigation be terminated without an injury determination if imports of the subject merchandise are found to be negligible.[7] 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.[8] As shown in table IV-3, U.S. imports of wind towers from Canada, Indonesia, Korea, and Vietnam accounted for ***, respectively, of total imports of wind towers from July 2018 to June 2019.

Table IV-3
Wind towers: U.S. imports in the twelve month period 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	1,345	92.2
Nonsubject sources	***	***
All import sources	***	***

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

[7] 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)).

[8] Section 771 (24) of the Act (19 U.S.C § 1677(24)).

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.

Fungibility

The Commission requested information on U.S. shipments by tower size.[9] As shown in table IV-4 and figure IV-2, *** reported U.S. shipments of towers with a height between 70-89.9 meters and towers with a height of 90 or more meters in 2018.[10]

Respondent Marmen argued that, for their sales of "hybrid towers" (in this instance, towers "consisting of top sections manufactured by Marmen Canada in Quebec and mid and base sections manufactured by Marmen Energy in Brandon, South Dakota,"), only the top section of the tower is subject merchandise, and that the top sections are not fungible with complete towers imported from other subject countries.[11] [12] Petitioners contend that top sections exported by Marmen Canada in Quebec are fungible with the top sections produced by Marmen Energy in its Brandon, South Dakota facility, and that regardless of how sections may be sourced and/or supplied, towers and sections are fungible.[13]

---

[9] The Commission requested information on U.S. shipments of towers with heights of 50-69.9 meters, 70-89.9 meters, and 90 or more meters.

[10] *** with a height of 50-69.9 meters in 2018.

[11] Respondent Marmen's postconference brief, pp. 1-2. See also conference transcript, pp. 12-13 (Campbell).

[12] Respondent Marmen clarified that their definition of "hybrid towers" differed from the wind turbine industry's definition of "hybrid towers", which refers to towers made with concrete and steel sections. See Conference transcript, p. 141 (Pellerin).

[13] Petitioners' postconference brief, p. 6.

Table IV-4
Wind towers: U.S. producers' and U.S. importers' U.S. shipments by size, 2018

Source	70 to 89.9 meter towers	90 or more meter towers	All in-scope tower sizes
	Quantity (towers)		
U.S. producers	***	***	2,699
U.S. imports from.--			
Canada	***	***	***
Indonesia	***	***	***
Korea	***	***	***
Vietnam	***	***	***
Subject sources	***	***	848
Nonsubject sources	***	***	***
All import sources	***	***	***
U.S. producers and U.S. importers	***	***	***
	Share across (percent)		
U.S. producers	***	***	***
U.S. imports from.--			
Canada	***	***	***
Indonesia	***	***	***
Korea	***	***	***
Vietnam	***	***	***
Subject sources	***	***	***
Nonsubject sources	***	***	***
All import sources	***	***	***
U.S. producers and U.S. importers	***	***	***
	Share down (percent)		
U.S. producers	***	***	***
U.S. imports from.--			
Canada	***	***	***
Indonesia	***	***	***
Korea	***	***	***
Vietnam	***	***	***
Subject sources	***	***	***
Nonsubject sources	***	***	***
All import sources	***	***	***
U.S. producers and U.S. importers	***	***	***

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

Geographical markets

Based on official import statistics, the majority of imports under HTS statistical reporting number 7308.20.0020 (inclusive of imports of both subject wind towers and nonsubject merchandise) from Canada entered through Detroit, Michigan, Buffalo, New York, and Ogdensburg, New York. Imports under HTS statistical reporting number 7308.20.0020 (inclusive of imports of both subject wind towers and nonsubject merchandise) from Indonesia entered through Houston-Galveston, Texas, Charlotte, North Carolina, and Ogdensburg, New York. The majority of imports under HTS statistical reporting number 7308.20.0020 (inclusive of imports of both subject wind towers and nonsubject merchandise) from Korea entered through Los Angeles, California, Columbia-Snake, Oregon, and Detroit, Michigan. The majority of imports under HTS statistical reporting number 7308.20.0020 (inclusive of imports of both subject wind towers and nonsubject merchandise) from Vietnam entered through Houston-Galveston, Texas, Port Arthur, Texas, and Dallas-Fort Worth, Texas. Table IV-5 presents U.S. imports of merchandise under HTS statistical reporting number 7308.20.0020 by border of entry.

Table IV-5
Wind towers: U.S. imports of merchandise under HTS statistical reporting number 7308.20.0020, inclusive of wind towers, by border of entry, 2018

Item	Border of entry				
	East	North	South	West	All borders
	Value (1,000 dollars)				
U.S. imports from.--					
Canada	15,036	40,141	9,936	---	65,113
Indonesia	---	---	61,373	---	61,373
Korea	---	---	32,776	26,961	59,737
Vietnam	---	---	21,986	---	21,986
Subject sources	15,036	40,141	126,071	26,961	208,209
Nonsubject sources	2,786	2,680	25,001	8,995	39,462
All import sources	17,822	42,821	151,072	35,957	247,671
	Share across (percent)				
U.S. imports from.--					
Canada	23.1	61.6	15.3	---	100.0
Indonesia	---	---	100.0	---	100.0
Korea	---	---	54.9	45.1	100.0
Vietnam	---	---	100.0	---	100.0
Subject sources	7.2	19.3	60.6	12.9	100.0
Nonsubject sources	7.1	6.8	63.4	22.8	100.0
All import sources	7.2	17.3	61.0	14.5	100.0
	Share down (percent)				
U.S. imports from.--					
Canada	84.4	93.7	6.6	---	26.3
Indonesia	---	---	40.6	---	24.8
Korea	---	---	21.7	75.0	24.1
Vietnam	---	---	14.6	---	8.9
Subject sources	84.4	93.7	83.5	75.0	84.1
Nonsubject sources	15.6	6.3	16.5	25.0	15.9
All import sources	100.0	100.0	100.0	100.0	100.0

Note.-- Merchandise imported under HTS subheading 7308.20.0020 includes subject wind towers, as well as nonsubject merchandise.

Source: Official U.S. import statistics under HTS statistical reporting number 7308.20.0020, accessed July 22, 2019.

As shown in table IV-6 and figure IV-2 U.S. importers' U.S. shipments *** regions as U.S. producers' U.S. shipments in 2018.

Table IV-6
Wind towers: U.S. producers' and U.S. importers' U.S. shipments by region, 2018

Source	Northeast	Midwest	Southeast	Central southwest	Mountains	Pacific Coast	United States
	Quantity (towers)						
U.S. producers	***	***	***	***	***	***	***
U.S. imports from.-- Canada	***	***	***	***	***	***	***
Indonesia	***	***	***	***	***	***	***
Korea	***	***	***	***	***	***	***
Vietnam	***	***	***	***	***	***	***
Subject sources	***	***	***	***	***	***	***
U.S. producers and subject U.S. importers	***	***	***	***	***	***	***
	Share across (percent)						
U.S. producers	***	***	***	***	***	***	***
U.S. imports from.-- Canada	***	***	***	***	***	***	***
Indonesia	***	***	***	***	***	***	***
Korea	***	***	***	***	***	***	***
Vietnam	***	***	***	***	***	***	***
Subject sources	***	***	***	***	***	***	***
U.S. producers and subject U.S. importers	***	***	***	***	***	***	***
	Share down (percent)						
U.S. producers	***	***	***	***	***	***	***
U.S. imports from.-- Canada	***	***	***	***	***	***	***
Indonesia	***	***	***	***	***	***	***
Korea	***	***	***	***	***	***	***
Vietnam	***	***	***	***	***	***	***
Subject sources	***	***	***	***	***	***	***
U.S. producers and subject U.S. importers	***	***	***	***	***	***	***

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

Figure IV-2
Wind towers: U.S. producers' and U.S. importers' U.S. shipments by region, 2018

* * * * * * *

Presence in the market

Based on official statistics, as shown in table IV-7 and figure IV-3, imports from subject sources were present along with domestic product during January 2016-June 2019. Subject imports from Canada entered in each these 42 months. Subject imports from Indonesia entered in 26 of the 42 months through June 2019. Subject imports from Korea entered in 32 of the 42 months through June 2019. Subject imports from Vietnam entered in 11 of the 42 months through June 2019.

Table IV-7
Wind towers: U.S. imports of merchandise under HTS statistical reporting number 7308.20.0020, inclusive of wind towers, by month, January 2016 through June 2019

U.S. imports	Canada	Indonesia	Korea	Vietnam	Subject sources	Nonsubject sources	All other sources
	Value (1,000 dollars)						
2016.--							
January	5,657	9,854	234	---	15,745	503	16,248
February	7,623	16,917	684	---	25,223	1,201	26,424
March	506	8,552	819	---	9,877	5,879	15,757
April	80	12,790	484	---	13,354	23,073	36,428
May	2,006	4,253	562	---	6,820	35,946	42,766
June	3,769	17,283	435	---	21,486	31,089	52,575
July	14,289	22,785	9,590	---	46,664	14,687	61,351
August	11,674	18,189	9,731	---	39,593	3,948	43,541
September	3,409	3,881	9,003	14,296	30,589	1,562	32,151
October	240	---	243	9,864	10,347	1,067	11,414
November	86	---	494	---	581	1,269	1,850
December	296	---	747	---	1,043	615	1,658
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
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

Table continued on next page.

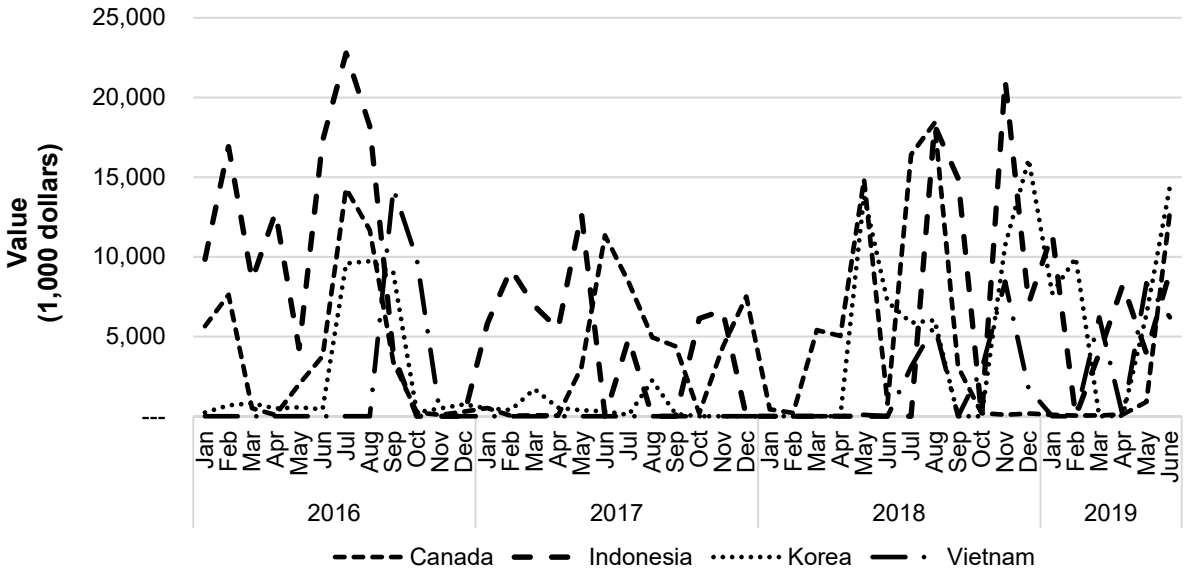
Table IV-7-- Continued
Wind towers: U.S. imports of merchandise under HTS statistical reporting number 7308.20.0020, inclusive of wind towers by month, January 2016 through June 2019

U.S. imports	Canada	Indonesia	Korea	Vietnam	Subject sources	Nonsubject sources	All other sources
	Value (1,000 dollars)						
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

Note.--Merchandise imported under HTS subheading 7308.20.0020 includes subject wind towers, as well as nonsubject merchandise.

Source: Official U.S. import statistics under HTS statistical reporting number 7308.20.0020, accessed July 22, 2019.

Figure IV-3
Wind towers: Monthly U.S. imports from individual subject sources, January 2016 through June 2019



Note.-- Merchandise imported under HTS subheading 7308.20.0020 includes subject wind towers, as well as nonsubject merchandise.

Source: Official U.S. import statistics under HTS statistical reporting number 7308.20.0020, accessed July 22, 2019.

U.S. IMPORTERS' IMPORTS SUBSEQUENT TO MARCH 31, 2019

The Commission requested importers to indicate whether they had imported or arranged for the importation of wind towers from China, Vietnam, or other sources for delivery after March 31, 2019. Five responding firms, ***, reported such imports, which are presented in table IV-8.

Table IV-8
Wind towers: U.S. importers' arranged imports

Item	Period				
	Apr-Jun 2019	Jul-Sept 2019	Oct-Dec 2019	Jan-Mar 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.

APPARENT U.S. CONSUMPTION

Data on apparent U.S. consumption and U.S. market shares for wind towers for the total merchant markets are presented in tables IV-9 and IV-10, respectively, and figures IV-4 and IV-5, respectively. Based on data presented in table IV-9, U.S. producers U.S. shipments in the total market decreased by *** percent between 2016 and 2018, but were higher by *** percent in January-March 2019 than in January-March 2018. U.S. importers U.S. shipments from all subject sources decreased by *** percent between 2016 and 2018, but were higher by *** percent in January-March 2019 than in January-March 2018. U.S. importers' U.S. shipments of nonsubject sources decreased overall by *** percent between 2016 and 2018, ***, and were ***. Based on data presented in table IV-10, U.S. producers U.S. shipments in the merchant market decreased by *** percent between 2016 and 2018, but were higher by *** percent in January-March 2019 than in January-March 2018. U.S. importers U.S. shipments from all subject sources decreased by *** percent between 2016 and 2018, but were higher by *** percent in January-March 2019 than in January-March 2018. U.S. importers U.S. shipments of nonsubject sources exhibited similar trends in the merchant market as they did in the total market during the period for which data were collected.

Table IV-9
Wind towers: U.S. shipments of domestic product, U.S. shipments of imports, and apparent U.S. consumption, total market, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	2018	2019
	Quantity (towers)				
U.S. producers' U.S. shipments	3,118	2,666	2,699	668	712
U.S. importers' U.S. shipments from.--Canada	***	***	***	***	***
Indonesia	***	***	***	***	***
Korea	***	***	***	***	***
Vietnam	***	***	***	***	***
Subject sources	1,113	1,010	848	125	256
Nonsubject sources	***	***	***	***	***
All import sources	***	***	***	***	***
Apparent U.S. consumption	***	***	***	***	***
	Value (1,000 dollars)				
U.S. producers' U.S. shipments	1,008,336	846,177	868,294	209,189	222,313
U.S. importers' U.S. shipments from.--Canada	***	***	***	***	***
Indonesia	***	***	***	***	***
Korea	***	***	***	***	***
Vietnam	***	***	***	***	***
Subject sources	322,610	272,245	249,039	32,228	65,626
Nonsubject sources	***	***	***	***	***
All import sources	***	***	***	***	***
Apparent U.S. consumption	***	***	***	***	***

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

Figure IV-4
Wind towers: Apparent U.S. total market consumption, 2016-18, January-March 2018, and January-March 2019

* * * * * * *

Table IV-10
Wind towers: U.S. shipments of domestic product, U.S. shipments of imports, and apparent U.S. consumption, merchant market, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	2018	2019
	Quantity (towers)				
U.S. producers' commercial U.S. shipments	***	***	***	***	***
U.S. importers' U.S. shipments of imports from.--					
Canada	***	***	***	***	***
Indonesia	***	***	***	***	***
Korea	***	***	***	***	***
Vietnam	***	***	***	***	***
Subject sources	***	***	***	***	***
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 of imports from.--					
Canada	***	***	***	***	***
Indonesia	***	***	***	***	***
Korea	***	***	***	***	***
Vietnam	***	***	***	***	***
Subject sources	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
All import sources	***	***	***	***	***
Apparent U.S. consumption	***	***	***	***	***

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

Figure IV-5
Wind towers: Apparent U.S. merchant market consumption, 2016-18, January-March 2018, and January-March 2019

* * * * * *

U.S. MARKET SHARES

U.S. market share data for the total and merchant markets are presented in tables IV-11 and IV-12, respectively.

Table IV-11
Wind towers: U.S. consumption and market shares, total market, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	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-12
Wind towers: U.S. consumption and market shares, merchant market, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	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 of imports 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 of imports 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 2016-18, raw materials' share of COGS ranged between *** percent (2017) and *** percent (2016). During January-March 2018 and January-March 2019, raw materials' share of COGS was relatively at steady at *** and *** percent, respectively.[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]

Steel plate is the principal raw material used in making wind towers, along with flanges, paint, and interior parts.[3] Broadwind described steel plate as accounting for 70 to 80 percent of the material cost of a wind tower,[4] while Marmen described it as 40 to 50 percent.[5] As shown in figure V-1, hot-rolled steel plate prices fluctuated in 2016, increased in the beginning of 2017 and again in the beginning of 2018, and decreased from January to July 2019.

Figure V-1
Hot-rolled steel plate: U.S. transaction prices, January 2016 to July 2019

* * * * * * *

U.S. producers and importers were asked to characterize the effects of section 232 tariffs on imported steel products. *** U.S. producers indicated that the 232 tariffs affected the U.S. wind towers market, and had led to an increase in steel costs. Four U.S. producers indicated that as a result, prices for wind towers in the U.S. market went up, while two stated that the prices for wind towers were unchanged. Several U.S. producers stated that while their steel costs had risen, it was difficult to raise prices when competing with subject imports. *** described the section 232 tariffs as decreasing their profitability. *** stated that they passed through increased steel costs in their prices, although *** stated that customers then try to lower the conversion component of pricing in response.[6] Marmen stated that the section 232

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[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] Conference transcript, p. 17 (Janda).

[5] Conference transcript, p. 122 (Pellerin).

[6] See pricing methods section for a discussion of conversion pricing.

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.[7]

Six importers indicated that the section 232 tariffs had an effect on the U.S. wind towers market, increasing the cost of steel and the price of wind towers, while one importer (***) stated the section 232 tariffs did not affect the market. *** indicated that the tariffs resulted in a loss of profitability due to increased steel costs. *** estimated that wind tower prices increased by 20 percent. *** estimated that steel price increases of 30 percent resulted in wind tower price increases of between 2 and 6 percent (***[8]). *** also stated that the section 232 tariffs had resulted in a loss of competitiveness of domestic wind towers.

U.S. producers and importers were also asked about the effects on the wind tower market of the antidumping and countervailing duty orders on CTL plate in 2017. 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, three stated that they did not know, two (***) stated that it had not had an impact, and two (***) stated that the orders raised the cost of steel. In further comments, *** stated that any import tariff would constrain raw material supplies, and *** described the duties as increasing costs for domestic suppliers. *** stated that the orders had not had an impact on the market for wind towers.

Five U.S. producers and five U.S. importers indicated that raw materials costs had risen since January 1, 2016, most often citing higher steel prices, especially because of the section 232 tariffs. U.S. producer *** stated that higher raw material costs in 2018 caused it to raise prices of wind towers, albeit not as much as raw material costs have risen. U.S. producer *** stated that its raw material prices had increased due to the tariffs on steel products, but that it was difficult to raise its own selling prices due to price pressure from subject imports. Similarly, *** indicated that increased raw material prices had reduced its profitability. U.S. producer *** stated that steel tariffs and wage increases had led to raw material price increases. U.S. importer *** indicated that the prices of steel plate as well as other components (flanges, paint, and cables) had risen, due to tariffs on Chinese and Mexican produced parts.

However, *** and two importers described raw material prices as having fluctuated since January 1, 2016. *** 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.

[7] Conference transcript, p. 123 (Pellerin).

[8] See pricing methods section below for a discussion of how wind tower purchasers ***.

Transportation costs to the U.S. market

During 2018, transportation costs for wind towers shipped from subject countries to the United States averaged 8.2 percent for Canada, 64.0 percent for Indonesia, 19.4 percent for Korea, and 2.5 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.[9]

U.S. inland transportation costs

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 are typically placed in a "lay-down" facility after production, and are later retrieved by the customer.[10] In questionnaire responses, five U.S. producers and two responding U.S. importers (***) reported that their customers typically arrange transportation.[11] ***.

Since many suppliers do not arrange transportation, they did not report U.S. inland transportation costs to their customers. *** 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, and U.S. importer *** reported that transportation costs were 16 percent of the cost of wind towers.

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 simply the f.o.b. price.[12] On the other hand, 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) does not yet know when or where the wind tower will be used, and so price competition takes place over f.o.b. price.[13]

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[9] 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 subheading 7308.20.0020.

[10] Conference transcript, p. 22 (Janda) and p. 30 (Cole).

[11] Six importers reported that transportation was arranged from their point of importation.

[12] 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.

[13] Petitioners' postconference brief, p. 21, and conference transcript, p. 10 (Price) and pp. 30 and 51 (Cole).

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.[14]

U.S. producers reported selling wind towers under contracts, but the length of these contracts varied by firm. *** sold almost entirely or entirely under long-term contracts, *** only under short-term contracts, and *** under annual contracts. *** split its sales between long-term contracts and spot sales. Among importers that resell wind towers, *** sold under short-term contracts, and *** sold under annual contracts. At the conference, Arcosa stated that most of its contracts are three-year contracts, and added 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.[15]

Four 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 allow price renegotiation but its long-term contracts did not. Producers generally indicated that their contracts fixed price and quantity. *** stated that their contracts do not include provisions adjusting price to raw materials cost changes, but *** contracts do. The importers that resell wind towers (***) reported that their contracts ***.

Petitioners Arcosa and Broadwind described large purchasers as requiring directed buys of raw materials and components from specific suppliers, so that negotiations between wind tower producers and purchasers come down to the pricing of conversion component of the U.S. wind tower producer.[16] Longer contracts may have escalators or pass-throughs for steel prices.[17] Additionally, Arcosa stated that, due to the availability of lower-priced subject imports,

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[14] Several U.S. producers and/or importers (***) answered the question, although these firms all internally consume wind towers and do not sell wind towers. Their responses are not compiled in the analysis above.

[15] Conference transcript, p. 61 (Cole).

[16] As discussed in the conference, conversion pricing refers to the share of price assigned to cover the costs of labor and some materials, plus a mark-up. Conference transcript, p. 23-25 (Janda) and pp. 30, 46-48, and 69 (Cole). Please see Part VI for data on conversion costs, defined as labor costs plus other factory costs.

[17] Conference transcript, pp. 50 and 95 (Cole).

some purchasers have delayed purchases under contracts, or refused to honor contracts entirely.[18]

Sales terms and discounts

U.S. producers typically quote prices on an f.o.b. basis. Among importers that resell wind towers, ***.

Two producers[19] reported not having a discount policy, and two reported having discounts for on-time payment. Only *** reported quantity discounts. Among importers that resell wind towers, ***.

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 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 projects since January 1, 2016 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. *** 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 except ***. ***. The *** which answered this question indicated that every bid involving U.S. producers also involved bids from suppliers of wind towers from one or more of the subject countries.

[18] Conference transcript, p. 30 (Cole). ***.

[19] ***.

Table V-1
Wind towers: U.S. importer/purchasers' projects involving wind towers since January 1, 2016

* * * * * * *

Additionally, U.S. importers were asked to provide information on their five largest bid processes involving wind towers since January 1, 2016, 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. Two importer/purchasers (***) provided data in the requested format. *** stated that there was not enough time to provide the data.[20] *** stated that *** could not provide data in the format requested because *** did not purchase on a project basis. ***.

***

***.[21] ***. Table V-3 summarizes *** bid data by country.

Table V-2
Wind towers: *'s bid data for 2019**

* * * * * * *

Table V-3
Wind towers: *'s bid data for 2019, by country**

* * * * * * *

***

U.S. wind tower importer/purchasers *** provided bid data in the format requested by the Commission (tables V-4 through V-9). These purchasers reported bids from U.S. producers and suppliers of wind towers from Indonesia, Korea, and nonsubject countries. ***. Table V-10 summarizes the data in tables V-2 and V-4 through V-9.

Table V-4
Wind towers: * 1st-largest purchase**

* * * * * * *

[20] Email from ***.
[21] Email from ***.

Table V-5
Wind towers: * 2nd-largest purchase**

* * * * * * *

Table V-6
Wind towers: * 3rd-largest purchase**

* * * * * * *

Table V-7
Wind towers: * 4th-largest purchase**

* * * * * * *

Table V-8
Wind towers: * 5th-largest purchase**

* * * * * * *

Table V-9
Wind towers: * largest purchase**

* * * * * * *

Table V-10
Wind towers: Instances of underbidding and the range and average of margins, by country, January 2016 through March 2019

* * * * * * *

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, 2016. These data are summarized in table V-11. ***. In cases where importers also reported bids (above), the data seem broadly consistent with what importers reported, ***.

Table V-11
Wind towers: U.S. producers' top 15 bids

* * * * * * *

Lost sales and lost revenue

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 (including ***), ***.

Staff contacted five purchasers and received responses from five purchasers. 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. Responding purchasers reported purchasing and importing 16,495 wind towers during January 2016-March 2019 (table V-12).

Table V-12
Wind towers: Purchasers' responses to purchasing patterns

* * * * * * *

During 2018, responding purchasers purchased *** percent of their total purchases plus imports from U.S. producers. This share was up from 2017 (*** percent) but down from 2016 (***) percent. Also in 2018, responding purchasers purchased or imported *** percent from Canada, *** percent from Indonesia, *** percent from Korea, *** percent from Vietnam, and *** percent from nonsubject sources.

Purchasers were asked how the shares of their purchases from different sources have changed since January 1, 2016. *** reported increasing the domestic product share of their purchases. ***. ***. *** reported a constant purchase share for domestic product, and *** reported fluctuating purchases from domestic producers, due to fluctuating demand.

Purchasers reported widely varying trends for purchase shares from individual subject countries. For product from Canada, *** reported fluctuating shares, while *** reported a decrease due to a lack of competitiveness of Canadian product when exported to the United States. For product from Indonesia, *** reported increasing shares, while *** reported a fluctuating share. *** stated that it obtained more Indonesian product when U.S. product was not available. *** stated that their purchases of Indonesian wind towers followed changes in demand (***). For product from Korea, *** reported a decrease, *** reported an increase, and *** reported constant purchases. Additionally, *** described Korean product as lacking competitiveness since before 2016. For product from Vietnam, *** reported an increased share, *** reported a fluctuating share, and *** reported a decreasing or constant, but very small, share.

As seen in tables V-13 and V-14, of the five responding purchasers, *** reported that, since 2016, they had purchased imported wind towers from at least one subject country

instead of U.S.-produced product.[22] *** of these purchasers reported that subject import prices were lower than U.S.-produced product. However, *** firms indicated that price was not the primary reason for choosing imported product rather than U.S. product, citing reasons including quality, availability, and transportation costs.[23]

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 (table V-15).

Table V-13
Wind towers: Purchasers' responses to purchasing subject imports instead of domestic product

* * * * * * *

Table V-14
Wind towers: Purchasers' responses to purchasing subject instead of domestic, by country

* * * * * * *

Table V-15
Wind towers: Purchasers' responses to U.S. producer price reductions, by country

* * * * * * *

[22] ***.
[23] ***.

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 described below, the initiation of GRI Towers' wind tower production operations in 2017 reflects start-up activity, which resulted in ***. On November 1, 2018, the wind tower operations of Trinity, along with several other business segments of that company, were spun off to form Arcosa, a new, publicly traded company.[3] [4]

OPERATIONS ON WIND TOWERS

Table VI-1 presents wind tower financial results specific to commercial sales only (merchant market). Table VI-2 presents corresponding changes in average per tower values. Table VI-3 presents wind tower financial results specific to combined commercial sales and transfers (total market). Table VI-4 presents corresponding changes in average per tower values. Company-specific financial information is presented in table VI-5.[5]

[1] ***.

[2] U.S. producers indicated that wind towers represent *** of relevant establishment operations. U.S. producers' questionnaires, responses to III-5.

[3] Arcosa 2018 10-K, p. 3.

[4] ***. *** U.S. producer questionnaire, responses to II-2 and II-3a (note 3).

[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.

Table VI-1
Wind towers: Results of operations of U.S. producers, merchant market, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	2018	2019
	Quantity (towers)				
Commercial sales	***	***	***	***	***
	Value (1,000 dollars)				
Commercial sales	***	***	***	***	***
Cost of goods sold.-- Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
Total COGS	***	***	***	***	***
Gross profit or (loss)	***	***	***	***	***
SG&A expenses	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Interest expense	***	***	***	***	***
All other expenses	***	***	***	***	***
All other income	***	***	***	***	***
Net income or (loss)	***	***	***	***	***
Depreciation/amortization	***	***	***	***	***
Cash flow	***	***	***	***	***
	Ratio to net sales (percent)				
Cost of goods sold.-- Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
Average COGS	***	***	***	***	***
Gross profit or (loss)	***	***	***	***	***
SG&A expenses	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Net income or (loss)	***	***	***	***	***
	Ratio to total COGS (percent)				
Cost of goods sold.-- Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
Total COGS	***	***	***	***	***
Conversion cost[1]	***	***	***	***	***

Table continued on next page.

Table VI-1—Continued
Wind towers: Results of operations of U.S. producers, merchant market, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	2018	2019
	Unit value (dollars per tower)				
Commercial sales	***	***	***	***	***
Cost of goods sold.-- Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
Average COGS	***	***	***	***	***
Gross profit or (loss)	***	***	***	***	***
SG&A expenses	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Net income or (loss)	***	***	***	***	***
	Number of firms reporting				
Data	4	5	5	5	5
Operating losses	***	***	***	***	***
Net losses	***	***	***	***	***

[1] Conversion cost is the sum of direct labor and other factory costs.

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

Table VI-2
Wind towers: Changes in AUV's, merchant market, 2016-18, January-March 2018, and January-March 2019

Item	Between calendar years			Between partial year period
	2016-18	2016-17	2017-18	2018-19
	Change in AUVs (dollars per tower)			
Commercial sales	***	***	***	***
Cost of goods sold.-- Raw materials	***	***	***	***
Direct labor	***	***	***	***
Other factory costs	***	***	***	***
Average COGS	***	***	***	***
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, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	2018	2019
	Quantity (towers)				
Commercial sales	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
Total market net sales	3,118	2,666	2,699	668	712
	Value (1,000 dollars)				
Commercial sales	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
Total market net sales	1,008,336	846,177	868,294	209,189	222,313
Cost of goods sold.-- Raw materials	624,702	491,700	558,928	145,370	146,000
Direct labor	91,092	94,312	98,449	19,317	22,420
Other factory costs	117,860	120,364	108,930	24,746	26,626
Total COGS	833,654	706,376	766,307	189,433	195,046
Gross profit (loss)	174,682	139,801	101,987	19,756	27,267
SG&A expenses	26,459	28,110	25,315	7,055	6,193
Operating income or (loss)	148,223	111,691	76,672	12,701	21,074
Interest expense	7,035	7,283	7,203	1,743	1,829
All other expenses	15,480	18,900	20,312	5,182	5,209
All other income	1,039	431	4,095	99	121
Net income or (loss)	126,747	85,939	53,252	5,875	14,157
Depreciation/amortization	28,758	40,715	41,460	12,054	11,278
Cash flow	155,505	126,654	94,712	17,929	25,435
	Ratio to net sales (percent)				
Cost of goods sold.-- Raw materials	62.0	58.1	64.4	69.5	65.7
Direct labor	9.0	11.1	11.3	9.2	10.1
Other factory costs	11.7	14.2	12.5	11.8	12.0
Average COGS	82.7	83.5	88.3	90.6	87.7
Gross profit or (loss)	17.3	16.5	11.7	9.4	12.3
SG&A expenses	2.6	3.3	2.9	3.4	2.8
Operating income or (loss)	14.7	13.2	8.8	6.1	9.5
Net income or (loss)	12.6	10.2	6.1	2.8	6.4
	Ratio to total COGS (percent)				
Cost of goods sold.-- Raw materials	74.9	69.6	72.9	76.7	74.9
Direct labor	10.9	13.4	12.8	10.2	11.5
Other factory costs	14.1	17.0	14.2	13.1	13.7
Total COGS	100.0	100.0	100.0	100.0	100.0
Conversion cost[1]	25.1	30.4	27.1	23.3	25.1

Table continued on next page.

Table VI-3—Continued
Wind towers: Results of operations of U.S. producers, total market, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	2018	2019
	Unit value (dollars per tower)				
Commercial sales	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
Total market net sales	323,392	317,396	321,710	313,157	312,237
Cost of goods sold.-- Raw materials	200,353	184,434	207,087	217,620	205,056
Direct labor	29,215	35,376	36,476	28,918	31,489
Other factory costs	37,800	45,148	40,359	37,045	37,396
Average COGS	267,368	264,957	283,923	283,582	273,941
Gross profit or (loss)	56,024	52,438	37,787	29,575	38,296
SG&A expenses	8,486	10,544	9,379	10,561	8,698
Operating income or (loss)	47,538	41,895	28,408	19,013	29,598
Net income or (loss)	40,650	32,235	19,730	8,795	19,883
	Number of firms reporting				
Data	5	6	6	6	6
Operating losses	***	***	***	***	***
Net losses	***	***	***	***	***

[1] Conversion cost is the sum of direct labor and other factory costs.

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

Table VI-4
Wind towers: Changes in AUVs, total market, 2016-18, January-March 2018, and January-March 2019

Item	Between Calendar years			Between partial year period
	2016-18	2016-17	2017-18	2018-19
	Change in AUVs (dollars per tower)			
Total net sales	(1,682)	(5,996)	4,314	(920)
Cost of goods sold.-- Raw materials	6,734	(15,920)	22,653	(12,564)
Direct labor	7,261	6,161	1,100	2,571
Other factory costs	2,560	7,348	(4,788)	351
Average COGS	16,554	(2,411)	18,965	(9,641)
Gross profit	(18,237)	(3,585)	(14,652)	8,721
SG&A expense	894	2,058	(1,164)	(1,863)
Operating income or (loss)	(19,130)	(5,643)	(13,487)	10,585
Net income or (loss)	(20,920)	(8,415)	(12,505)	11,089

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

Table VI-5
Wind towers: Results of operations of U.S. producers, total market, by firm, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	2018	2019
	Total net sales (towers)				
***	***	***	***	***	***
***	***	***	***	***	***
***	(1)	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Net sales quantity, merchant market	***	***	***	***	***
***	***	***	***	***	***
Net sales quantity, total market	3,118	2,666	2,699	668	712
	Share of total net sales (percent)				
***	***	***	***	***	***
***	***	***	***	***	***
***	(1)	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Share of net sales, merchant market	***	***	***	***	***
***	***	***	***	***	***
Share of net sales, total market	100.0	100.0	100.0	100.0	100.0
	Total net sales (1,000 dollars)				
***	***	***	***	***	***
***	***	***	***	***	***
***	(1)	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Net sales value, merchant market	***	***	***	***	***
***	***	***	***	***	***
Net sales value, total market	1,008,336	846,177	868,294	209,189	222,313

Table continued on next page.

Table VI-5—Continued
Wind towers: Results of operations of U.S. producers, total market, by firm, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	2018	2019
	Unit net sales value (dollars per tower)				
***	***	***	***	***	***
***	***	***	***	***	***
***	([1])	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Unit net sales value, merchant market	***	***	***	***	***
***	***	***	***	***	***
Unit net sales value, total market	323,392	317,396	321,710	313,157	312,237
	Unit effective conversion price (per tower)[2]				
***	***	***	***	***	***
***	***	***	***	***	***
***	([1])	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Unit effective conversion price, merchant market	***	***	***	***	***
***	***	***	***	***	***
Unit effective conversion price, total market	123,038	132,962	114,622	95,537	107,181
	Effective conversion price to net sales (percent)[2]				
***	***	***	***	***	***
***	***	***	***	***	***
***	([1])	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Effective conversion price to net sales ratio, merchant market	***	***	***	***	***
***	***	***	***	***	***
Effective conversion price to net sales ratio, total market	38.0	41.9	35.6	30.5	34.3
	Conversion cost to net sales (percent)[3]				
***	***	***	***	***	***
***	***	***	***	***	***
***	([1])	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Conversion cost to net sales ratio, merchant market	***	***	***	***	***
***	***	***	***	***	***
Conversion cost to net sales ratio, total market	20.7	25.4	23.9	21.1	22.1

Table continued on next page.

Table VI-5—Continued
Wind towers: Results of operations of U.S. producers, total market, by firm, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	2018	2019
	Unit raw materials (dollars per tower)				
***	***	***	***	***	***
***	***	***	***	***	***
***	([1])	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Unit raw material costs, merchant market	***	***	***	***	***
***	***	***	***	***	***
Unit raw material costs, total market	200,353	184,434	207,087	217,620	205,056
	Unit direct labor (dollars per tower)				
***	***	***	***	***	***
***	***	***	***	***	***
***	([1])	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Unit direct labor cost, merchant market	***	***	***	***	***
***	***	***	***	***	***
Unit direct labor cost, total market	29,215	35,376	36,476	28,918	31,489
	Unit other factory costs (dollars per tower)				
***	***	***	***	***	***
***	***	***	***	***	***
***	([1])	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Unit other factory costs, merchant market	***	***	***	***	***
***	***	***	***	***	***
Unit other factory costs, total market	37,800	45,148	40,359	37,045	37,396
	Unit conversion cost (dollars per unit)[3]				
***	***	***	***	***	***
***	***	***	***	***	***
***	([1])	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Unit conversion cost, merchant market	***	***	***	***	***
***	***	***	***	***	***
Unit conversion cost, total market	67,015	80,524	76,835	65,963	68,885

Table continued on next page.

Table VI-5—Continued
Wind towers: Results of operations of U.S. producers, total market, by firm, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	2018	2019
	Unit COGS (dollars per tower)				
***	***	***	***	***	***
***	***	***	***	***	***
***	(1)	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Unit COGS, merchant market	***	***	***	***	***
***	***	***	***	***	***
Unit COGS, total market	267,368	264,957	283,923	283,582	273,941
	Cost of goods sold to net sales (percent)				
***	***	***	***	***	***
***	***	***	***	***	***
***	(1)	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
COGS to net sales ratio, merchant market	***	***	***	***	***
***	***	***	***	***	***
COGS to net sales ratio, total market	82.7	83.5	88.3	90.6	87.7
	Gross profit or (loss) (1,000 dollars)				
***	***	***	***	***	***
***	***	***	***	***	***
***	(1)	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Gross profit or (loss), merchant market	***	***	***	***	***
***	***	***	***	***	***
Gross profit or (loss), total market	174,682	139,801	101,987	19,756	27,267
	Gross profit or (loss) to net sales (percent)				
***	***	***	***	***	***
***	***	***	***	***	***
***	(1)	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Gross profit or (loss) to net sales ratio, merchant market	***	***	***	***	***
***	***	***	***	***	***
Gross profit or (loss) to net sales ratio, total market	17.3	16.5	11.7	9.4	12.3

Table continued on next page.

Table VI-5—Continued
Wind towers: Results of operations of U.S. producers, total market, by firm, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	2018	2019
	SG&A expenses (1,000 dollars)				
***	***	***	***	***	***
***	***	***	***	***	***
***	(1)	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
SG&A expenses, merchant market	***	***	***	***	***
***	***	***	***	***	***
SG&A expenses, total market	26,459	28,110	25,315	7,055	6,193
	SG&A expenses to net sales (percent)				
***	***	***	***	***	***
***	***	***	***	***	***
***	(1)	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
SG&A expenses to net sales ratio, merchant market	***	***	***	***	***
***	***	***	***	***	***
SG&A expenses to net sales ratio, total market	2.6	3.3	2.9	3.4	2.8
	Operating income or (loss) (1,000 dollars)				
***	***	***	***	***	***
***	***	***	***	***	***
***	(1)	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Operating income or (loss), merchant market	***	***	***	***	***
***	***	***	***	***	***
Operating income or (loss), total market	148,223	111,691	76,672	12,701	21,074
	Operating income or (loss) to net sales percent)				
***	***	***	***	***	***
***	***	***	***	***	***
***	(1)	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Operating income or (loss) to net sales ratio, merchant market	***	***	***	***	***
***	***	***	***	***	***
Operating income or (loss) to net sales ratio, total market	14.7	13.2	8.8	6.1	9.5

Table continued on next page.

Table VI-5—Continued
Wind towers: Results of operations of U.S. producers, total market, by firm, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	2018	2019
	Net income or (loss) (1,000 dollars)				
***	***	***	***	***	***
***	***	***	***	***	***
***	([1])	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Net income or (loss), merchant market	***	***	***	***	***
***	***	***	***	***	***
Net income or (loss), total market	126,747	85,939	53,252	5,875	14,157
	Net income or (loss) to net sales (percent)				
***	***	***	***	***	***
***	***	***	***	***	***
***	([1])	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Net income or (loss) to net sales ratio, merchant market	***	***	***	***	***
***	***	***	***	***	***
Net income or (loss) to net sales ratio, total market	12.6	10.2	6.1	2.8	6.4

[1] ***.
[2] Effective conversion price equals average sales value minus average raw material cost.
[3] Conversion cost is the sum of direct labor and other factory costs.

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

Revenue

On a quantity basis, commercial sales accounted for *** percent of total market sales in 2018 while transfer sales made up *** percent.[6] *** was the *** U.S. producer to

[6] Changes in GAAP revenue recognition rules during the period impacted the timing of wind tower revenue recognition. 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).

report transfer sales.[7] As a share of overall wind tower revenue in 2018, *** accounted for the largest company-specific shares on a quantity basis (*** percent and *** percent, respectively), followed by *** (*** percent, *** (*** percent), *** (*** percent) and *** (*** percent).

Quantity

For merchant market and total market operations, the directional pattern of total sales quantity were similar during the full year period with both categories reporting declines in 2017 and modest increases in 2018.[8] For merchant market operations, *** was the *** company to report lower sales quantity in January-March 2019 compared to January-March 2018. ***, whose sales are reflected in total market operations, also reported lower total sales quantity in January-March 2019 compared to January-March 2018.[9]

Value

U.S. producers varied in terms of the extent to which variations in average per tower sales value were attributed to changes in product mix.[10] [11] [12] [13] Average per tower commercial sales value remained within a relatively narrow range throughout the period: increasing modestly in 2017, declining somewhat in 2018, and then higher in January-March 2019 compared to January-March 2018. Inclusive of Vestas, the *** directional trend was reported for total market sales.

U.S. producers vary in terms of how sales values are determined. Arcosa and Broadwind stated that their wind tower sales values generally reflect a negotiated conversion price and pass through of primary raw materials.[14] Arcosa and Broadwind company officials indicated

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In general, U.S. producers do not receive progress payments and are responsible for supplying necessary working capital in order to produce wind towers. Conference transcript, p. 66 (Cole). ***. Petitioners' postconference brief, Exhibit 1, p. 59.

[7] ***. *** responses to ITC staff follow up questions, July 26, 2019. ***.

[8] ***. *** responses to ITC staff follow up questions, August 5, 2019.

[9] ***. *** responses to ITC staff follow up questions, July 26, 2019.

[10] As described by an Arcosa company official, ". . . tower models change from time to time. They'll change in height. Nothing dramatically. They'll change in a little bit of weight, but the structure's still the same, the process is still the same, the equipment we use to manufacture them is still the same. The biggest deviations you may see is the internals on the inside of the tower, maybe a certain project specific from time-to-time. But our largest customer may order two to three types of towers from us a year, and they don't change dramatically whatsoever." Conference transcript, pp. 63-64 (Cole). ***. *** responses to ITC staff follow up questions, August 5, 2019. ***. *** responses to ITC staff follow up questions, August 5, 2019.

[11] ***. *** responses to ITC staff follow up questions, August 5, 2019.

[12] ***. *** responses to ITC staff follow up questions, August 2, 2019.

[13] See footnote 9 regarding changes in *** product mix.

[14] An Arcosa company official stated, "While from OEM-to-OEM, the pricing formulas may be slightly different and are proprietary, the steel costs in the sales contract typically establish a pass through steel pricing formula. Oftentimes, OEMs either direct us to purchase steel from specific suppliers at

that, while contract volume and its impact on average conversion cost is the basis upon which conversion price is negotiated, contracted volume is not guaranteed and conversion price is not adjusted to account for lower actual volume and higher resulting average per tower conversion cost.[15] [16] Marmen reported that its wind tower sales values are not based on conversion price or a direct pass through of primary raw materials.[17] [18]

Cost of goods sold and gross profit or loss

Raw materials

For merchant market operations, raw material cost accounts for the single largest component of wind tower cost of goods sold (COGS), ranging from *** percent to *** percent during 2016 through March 2019. For total market operations, the share of raw material cost was somewhat higher, ranging from 69.6 percent to 76.7 percent. While a large share of total

predetermined steel prices or require us to negotiate with a select group of predetermined suppliers. Regardless, because of the pass through nature of the steel costs in sales contracts, the negotiations focus on the conversion price of the tower." Conference transcript, p. 30 (Cole).

***. *** responses to ITC staff follow up questions, August 5, 2019.

[15] Conference transcript, pp. 71-72 (Cole) and p. 72 (Janda). "Conversion costs" are generally the non-material costs associated with transforming material inputs into a finished product. With respect to wind tower manufacturing, conversion costs are assumed to reflect primarily direct labor and other factory costs.

[16] Another aspect of conversion price noted by an Arcosa company official is that it does not allow for a markup on raw material costs, despite expenses associated with material management. As described by an Arcosa company official, the company is ". . . expected to still employ all the people that have to manage the materials, from your receiving of the materials to your quota control inspectors that inspect the materials to administratively, you having to order those materials and care for them. If materials come in and they're damaged and you don't identify them immediately, then you get charged for them. So it's the lost margin that you would get on top of the conversion cost that you have to match against the subject imports." Conference transcript, p. 71 (Cole)

[17] A Marmen company official stated, "On the steel part, which is steel can be 40 to 50 percent of the total cost, we are totally free to buy from wherever we want. With the major OEM, and the two other OEMs, they compared their price that they can get with our price. Most of the time, if not always, we beat that price . . . {a}nd when people negotiate with us, they never negotiate that conversion cost. Sometimes they will ask us the conversion cost, but the final stuff is always the FOB price." Conference transcript, pp. 164-165 (Pellerin).

[18] ***. *** responses to ITC staff follow up questions, August 5, 2019. ***. *** responses to ITC staff follow up questions, August 5, 2019

raw material cost reflects carbon steel plate, other primary material inputs include flanges and internal components.[19] [20]

While differing in terms of magnitude, average per tower raw material cost for both merchant market and total market operations declined in 2017 and increased in 2018. In January-March 2019 compared to January-March 2018, merchant market operations reported higher average per tower raw material cost, while total market operations reported lower average per tower raw material cost.[21]

Table VI-5 shows that, while U.S. producers reported a relatively wide range of average per tower raw material costs, the directional pattern of change, for the most part, was similar.[22] In some instances, the underlying pattern of raw material cost reflects longer-term purchase agreements related to specific inputs.[23]

Conversion costs

For merchant market operations, total conversion costs (combined direct labor and other factory costs) ranged from *** percent to *** percent of total COGS and for total market operations ranged from 23.3 percent to 30.4 percent of total COGS [24] Primary conversion activity, inclusive of initial and secondary material preparation, reflects can fabrication, coating application, and assembly.[25] In addition to factors such as model changes, average per tower conversion cost is impacted by production volume and corresponding capacity utilization.[26]

While magnitudes varied, most U.S. producers reported higher average conversion costs in 2017, followed by more mixed directional patterns during the rest of the period. Table VI-5

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[19] Primary raw materials are cut-to-length steel plate, steel flanges, as well as electrical and mechanical components for internal assembly. Conference transcript, p. 17 (Janda). ***. *** responses to ITC staff follow up questions, August 5, 2019

[20] *** were the *** U.S. producers to report purchasing material inputs from related suppliers. ***. *** U.S. producer questionnaire, response to III-7. ***. *** U.S. producer questionnaire, response to III-7. Marmen confirmed that the revenue and corresponding costs reported in its U.S. producer questionnaire reflect its U.S. operations only. Conference transcript, pp. 169-170 (Pellerin).

[21] ***. *** responses to ITC staff follow up questions, July 26, 2019.

[22] ***. *** responses to ITC staff follow up questions, August 5, 2019.

***. *** responses to ITC staff follow up questions, August 5, 2019.

[23] In 2016, Arcosa entered into a steel purchase agreement that locked in steel plate prices during the period examined. Conference transcript, p. 97, p. 99 (Cole). ***. *** responses to ITC staff follow up questions, August 2, 2019. ***. Ibid.

[24] Other factory cost is the second largest component of COGS, ranging from *** percent to *** percent of total COGS for merchant market operations and *** percent to *** percent for total market operations. Direct labor, the smallest component of COGS, ranged from *** percent to *** percent of total COGS for merchant market operations and *** percent to *** percent for total market operations.

[25] Conference transcript, p. 17 (Janda).

[26] Conference transcript, p. 71 (Cole); p. 72 (Janda). *** responses to ITC staff follow up questions, August 5, 2019. ***. *** responses to ITC staff follow up questions, August 5, 2019. ***. *** responses to ITC staff follow up questions, August 5, 2019.

shows a range of company-specific average per tower conversion costs with ***. *** reported the lowest average per tower conversion cost throughout the period.[27]

Gross profit or loss

Table VI-5 shows that U.S. producers reported a range of effective conversion price to sales ratios.[28] *** effective conversion price to sales ratio remained within a relatively narrow range, while *** effective conversion price to sales ratio declined throughout the period. Among the merchant market producers, ***, generally reported the lowest effective conversion price to sales ratio.

For merchant market and total market operations, the directional pattern of total gross profit was the same: declines throughout the full year period followed by higher total gross profit in January-March 2019 compared to January-March 2018.[29] (Note: With the exception of ***, U.S. producers reported positive gross profit for all or the majority of the period that they had operations.)[30]

SG&A expenses and operating income or loss

Total selling, general, and administrative (SG&A) expenses for merchant market and total market operations declined irregularly during the full-year period, increasing to their highest level in 2017, and then declining in 2018. While fluctuating, corresponding SG&A expense ratios (total SG&A expenses divided by total revenue) for both categories remained within a relatively narrow range throughout the period. As such, the level of SG&A expenses generally played a secondary role in terms of explaining the pattern of operating results.[31] [32] [33]

Interest expense, other income/expenses, and net income or loss

***, *** U.S. producers reported some interest expense during the period examined with *** accounting for the largest company-specific share. *** also accounted for the

---

[27] ***. USITC auditor notes (preliminary phase).

[28] As referenced here, "effective conversion price" is the difference between sales value and raw material costs. It does not represent actual conversion price, which is specific to underlying supply agreements.

[29] During the full-year period specifically, the reduction in total gross profit for both categories reflects lower sales quantities and contracting gross profit ratios with the contraction in gross profit ratios reflecting a combination of factors: for merchant market and total market operations, higher conversion costs, as compared to 2016, offset a higher effective conversion price in 2017 and then amplified the negative effect of a lower effective conversion price in 2018.

[30] ***. *** responses to ITC staff follow up questions, August 5, 2019. ***. Ibid.

[31] ***. *** responses to ITC staff follow up questions, August 5, 2019

[32] ***. *** responses to ITC staff follow up questions August 2, 2019.

[33] ***. *** responses to ITC staff follow up questions, August 5, 2019

substantial majority of other expenses throughout the period, [34] while ***, respectively, accounted for the majority of other income in 2016 and 2018.[35]

While differences between operating results and net results were more pronounced for total market operations (i.e., total market operations include the *** of other expenses reported by *** noted previously), as compared to merchant market operations, operating and net results were directionally the same for both categories.

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, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	2018	2019
	Capital expenditures (1,000 dollars)				
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Capital expenditures, merchant market	***	***	***	***	***
***	***	***	***	***	***
Capital expenditures, total market	70,185	41,414	27,205	***	4,892
	Research and development expenses (1,000 dollars)				
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
R&D expenses, merchant market	***	***	***	***	***
***	***	***	***	***	***
R&D expenses, total market	***	***	***	***	***

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

[34] ***. *** responses to ITC staff follow-up questions, August 6, 2019

[35] ***. *** responses to ITC staff follow up questions, August 5, 2019. ***. *** responses to ITC staff follow up questions, August 5, 2019.

As a share of total reported market capital expenditures, *** accounted for the largest company-specific share (*** percent),[36] followed by *** (*** percent),[37] *** (*** percent),[38] *** (*** percent),[39] *** (*** percent),[40] and *** (*** percent).[41]

R&D expenses were reported by ***, which reported that they represent ***.[42] As described by Arcosa and Broadwind company officials at the Commission's staff conference, R&D activity, in general, represents manufacturing process improvements.[43]

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.[44]

Table VI-7
Wind towers: U.S. producers' total net assets and operating return on net assets, 2016-18

Firm	Calendar years		
	2016	2017	2018
	Total net assets (1,000 dollars)		
***	***	***	***
***	***	***	***
***	(1)	***	***
***	***	***	***
***	***	***	***
Total assets, merchant market	***	***	***
***	***	***	***
Total net assets, total market	349,449	417,142	445,462

Table continued on next page.

[36] ***. *** U.S. producer questionnaire, response to III-13 (note 1).
[37] ***. *** U.S. producer questionnaire, response to III-13 (note 1).
[38] ***. *** U.S. producer questionnaire, response to III-13 (note 1).
[39] ***. *** U.S. producer questionnaire, response to III-13 (note 1).
[40] ***. *** U.S. producer questionnaire, response to III-13 (note 1).
[41] ***. *** U.S. producer questionnaire, response to III-13 (note 1).
[42] *** U.S. producer questionnaire, response to III-13 (note 2). ***. Petitioners' postconference brief, Exhibit 1, p. 60.
[43] Conference transcript, p. 77 (Cole, Janda).
[44] 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.

Table VI-7—Continued
Wind towers: U.S. producers' total net assets and operating return on net assets, 2016-18

Firm	Calendar years		
	2016	2017	2018
	Operating return on assets (percent)		
***	***	***	***
***	***	***	***
***	(1)	***	***
***	***	***	***
***	***	***	***
Average operating return on assets merchant market	***	***	***
***	***	***	***
Average operating return on assets	42.4	26.8	17.2

1 ***.

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

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, 2016

Item	No	Yes
Negative effects 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		***
Other		***
Negative effects on growth and development	***	***
Rejection of bank loans		***
Lowering of credit rating		***
Problem related to the issue of stocks or bonds		***
Ability to service debt		***
Other		***
Anticipated negative effects of imports	***	***

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, 2016

Effects/Firm	Narrative
Negative impact on investment	
Denial or rejection of investment proposal:	
***	***
Reduction in the size of capital investments:	
***	***
***	***
Return on specific investments negatively impacted:	
***	***
***	***
***	***
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:	
***	***
***	***
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 alleged subsidies was presented earlier in this report; information on the volume and pricing of imports of the subject merchandise is presented in *Parts IV* and *V*; and information on the effects of imports of the subject merchandise on U.S. producers' existing development and production efforts is presented in *Part VI*. Information on inventories of the subject merchandise; foreign producers' operations, including the potential for "product-shifting;" any other threat indicators, if applicable; and any dumping in third-country markets, follows. Also presented in this section of the report is information obtained for consideration by the Commission on nonsubject countries.

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

THE INDUSTRY IN CANADA

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 Inc. These firms' exports to the United States equivalent to all, or nearly all, known U.S. imports of subject wind towers from Canada in 2018.[4] According to estimates requested of the responding Canadian producers, the production of wind towers in Canada reported in questionnaires accounts for all, or nearly all, known production of wind towers in Canada. Table VII-1 presents information on the wind tower operations of the responding producers and exporters in Canada.

Table VII-1
Wind towers: Summary data for producers in Canada, 2018

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)
Marmen	***	***	***	***	***	***
CS Wind Canada	***	***	***	***	***	***
Total	***	***	***	***	***	***

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

Changes in operations

As presented in table VII-2, producers in Canada reported several operational and organizational changes since January 1, 2016.

[3] These firms were identified through a review of information submitted in the petition and contained in *** records.

[4] Unless otherwise noted, export coverage for all subject countries has been calculated based on data reported in Commission-issued questionnaires.

Table VII-2
Wind towers: Canadian producers' reported changes in operations, since January 1, 2016

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. Canadian producers reported fluctuating capacity during 2016-18, and project decreased capacity into 2020. Wind tower production in Canada generally declined.[5] Production, and therefore capacity utilization, ***. End-of-period inventories, remained relatively low over the period for which data were collected ***. Overall, exports accounted for more than *** of shipments of Canadian wind towers, and the United States was the predominant destination in every full and partial period.

[5] ***.

Table VII-3
Wind towers: Data for producers in Canada, 2016-18, January-March 2018, January-March 2019, and projections calendar years 2019 and 2020

Item	Actual experience					Projections	
	Calendar year			January to March		Calendar year	
	2016	2017	2018	2018	2019	2019	2020
	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	***	***	***	***	***	***	***

Note—With regard to capacity utilization, ***. See ***.

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

Alternative products

No Canadian producer reported production of other products on the same equipment and machinery used to produce wind towers.

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, Oman, and Saudi Arabia (table VII-4). During 2018, the United States was the top export market for these products from Canada, accounting for 96.6 percent, followed by Oman, accounting for 1.7 percent.

Table VII-4
Towers and lattice masts of iron or steel: Exports from Canada, 2016-18

Destination market	Calendar year		
	2016	2017	2018
	Value (1,000 dollars)		
United States	137,685	61,855	104,025
Oman	---	---	1,826
Saudi Arabia	118	490	737
Lebanon	---	---	426
Australia	---	---	148
Honduras	---	---	124
Antigua & Barbuda	7	---	69
Bahamas	1	194	69
Dominica	78	446	69
All other destination markets	546	477	246
Total exports	138,436	63,462	107,740
	Share of value (percent)		
United States	99.5	97.5	96.6
Oman	---	---	1.7
Saudi Arabia	0.1	0.8	0.7
Lebanon	---	---	0.4
Australia	---	---	0.1
Honduras	---	---	0.1
Antigua & Barbuda	0.0	---	0.1
Bahamas	0.0	0.3	0.1
Dominica	0.1	0.7	0.1
All other destination markets	0.4	0.8	0.2
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. Import 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 2018 data.

Source: Official exports statistics under HS subheading 7308.20 as reported by Statistics Canada in the Global Trade Atlas database, accessed August 1, 2019.

THE INDUSTRY IN INDONESIA

The Commission issued foreign producers' or exporters' questionnaires to two firms believed to produce and/or export wind towers from Indonesia.[6] Usable responses to the Commission's questionnaire were received from one firm, PT Kenertec Power System ("Kenertec").[7] This firm's exports to the United States were equivalent to all, or nearly all, of known U.S. imports of wind towers from Indonesia in 2018. According to estimates requested of the responding Indonesian producer, the production of wind towers in Indonesia reported in its questionnaire accounts for all, or nearly all, of known production of wind towers in Indonesia. Table VII-5 presents information on the wind tower operations of the responding producers and exporters in Indonesia.

Table VII-5
Wind towers: Summary data for Indonesian producer Kenertec, 2018

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)
Kenertec	***	***	***	***	***	***
Total	***	***	***	***	***	***

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

Changes in operations

Table VII-6 presents Kenertec's reported operational and organizational changes since January 1, 2016.

Table VII-6
Wind towers: Indonesian producer Kenertec's reported changes in operations, since January 1, 2016

Item / Firm	Reported changed in operations
Prolonged shutdowns or curtailments:	
***	***
Other:	
***	***

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

[6] These firms were identified through a review of information submitted in the petition and contained in *** records.

[7] Commerce has preliminarily found there to be one foreign producer/exporter of subject merchandise in Indonesia, Kenertec. *See Utility Scale Wind Towers From Canada, Indonesia, the Republic of Korea, and the Socialist Republic of Vietnam: Initiation of Less-Than-Fair-Value Investigations*, 84 FR 37992, August 5, 2019. Kenertec ***.

Operations on wind towers

Table VII-7 presents information on the wind towers operations of the sole responding producer/exporter in Indonesia, Kenertec. Kenertec reported stable capacity throughout the period for which data were collected, and projects continued stable capacity into 2020. The firm's wind tower production in Indonesia, in contrast, fluctuated. While capacity utilization generally has remained, and is projected to remain, greater than *** percent, production and therefore capacity utilization ***. Inventories, like production, fluctuated over the period for which data were collected and, also like production, ***. Overall, exports accounted for the vast majority of shipments of Indonesian wind towers, and the United States was the predominant destination in every full and partial period, *** excepted (as there were *** during this time span).

Table VII-7
Wind towers: Data on Indonesian producer Kenertec, 2016-18, January-March 2018, and January-March 2019 and projection calendar years 2019 and 2020

Item	Actual experience					Projections	
	Calendar year			January to March		Calendar year	
	2016	2017	2018	2018	2019	2019	2020
	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

Responding Indonesian producer Kenertec reported no production of other products on the same equipment and machinery used to produce wind towers.

Exports

According to GTA, the leading export markets for towers and lattice masts of iron or steel (including wind towers) from Indonesia by value are the United States, Australia, and Jordan (table VII-8). During 2018, the United States was the top export market for these products from Indonesia, accounting for 78.4 percent, followed by the Australia, accounting for 16.6 percent.

Table VII-8
Towers and lattice masts of iron or steel: Exports from Indonesia, 2016-18

Destination market	Calendar year		
	2016	2017	2018
	Value (1,000 dollars)		
United States	85,562	42,495	64,246
Australia	14	4,658	13,589
Jordan	---	1,678	1,678
Greece	---	---	1,478
East Timor	254	627	300
Singapore	14,120	112	227
Algeria	---	---	141
Malaysia	2	145	139
Korea	---	---	64
All other destination markets	10,579	34	48
Total exports	110,532	49,748	81,912
	Share of value (percent)		
United States	77.4	85.4	78.4
Australia	0.0	9.4	16.6
Jordan	---	3.4	2.0
Greece	---	---	1.8
East Timor	0.2	1.3	0.4
Singapore	12.8	0.2	0.3
Algeria	---	---	0.2
Malaysia	0.0	0.3	0.2
Korea	---	---	0.1
All other destination markets	9.6	0.1	0.1
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. Import 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 2018 data.

Source: Official exports statistics under HS subheading 7308.20 as reported by Statistics Indonesia in the Global Trade Atlas database, accessed August 1, 2019.

THE INDUSTRY IN KOREA

The Commission issued foreign producers' or exporters' questionnaires to four 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, Ltd. ("Win&P").[9] These firms' exports to the United States were equivalent to the vast majority of U.S. imports of wind towers from Korea in 2018. According to estimates requested of the responding Korean producers, the production of wind towers in Korea reported in questionnaires accounts for approximately *** percent of overall production of wind towers in Korea. Table VII-9 presents information on the wind tower operations of the responding producers and exporters in Korea.

Table VII-9
Wind towers: Summary data for producers in Korea, 2018

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)
Dongkuk	***	***	***	***	***	***
Win&P	***	***	***	***	***	***
Total	***	***	***	***	***	***

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

Changes in operations

Producers in Korea *** operational and organizational changes since January 1, 2016.

Operations on wind towers

Table VII-10 presents information on the wind towers operations of the responding producers/exporters in Korea. Korean producers reported decreased capacity between 2016 and 2017, stable capacity from 2017 through 2018, and further decreased capacity into 2020. Wind tower production in Korea fluctuated. Production, and therefore capacity utilization, ***, while total shipments decreased *** in 2017, consistent with ***. Given that total ***. Overall, exports accounted for the vast majority of shipments of Korean wind towers, and the United States was the predominant destination in every full and partial period.

[8] These firms were identified through a review of information submitted in the petition and contained in *** records.

[9] The Commission did not receive a response from one Korean producer believed to produce/export subject wind towers, ***.

Table VII-10
Wind towers: Data for producers in Korea, 2016-18, January-March 2018, January-March 2019, and projections calendar years 2019 and 2020

Item	Actual experience					Projections	
	Calendar year			January to March		Calendar year	
	2016	2017	2018	2018	2019	2019	2020
	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

As shown in table VII-11, responding Korean firms produced other products on the same equipment and machinery used to produce wind towers.

Table VII-11
Wind towers: Korean producers' overall capacity and production on the same equipment as subject production, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	2018	2019
	Quantity (towers)				
Overall capacity	***	***	***	***	***
Production:					
Wind towers	***	***	***	***	***
Out-of-scope production	***	***	***	***	***
Total production on same machinery	***	***	***	***	***
	Ratios and shares (percent)				
Overall capacity utilization	***	***	***	***	***
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 Nicaragua, Burma, and the United States (table VII-12). During 2018, the United States was the third largest export market for these products from Korea, accounting for 10.5 percent, followed by Bangladesh, accounting for 10.4 percent.

Table VII-12
Towers and lattice masts of iron or steel: Exports from Korea, 2016-18

Destination market	Calendar year		
	2016	2017	2018
	Value (1,000 dollars)		
United States	28	330	595
Nicaragua	4,583	1,385	2,763
Burma	391	281	668
Bangladesh	12	5,937	591
China	230	119	213
Mongolia	---	---	204
Indonesia	---	---	203
India	---	---	177
Philippines	---	22	119
All other destination markets	17,269	1,545	139
Total exports	22,512	9,619	5,673
	Share of value (percent)		
United States	0.1	3.4	10.5
Nicaragua	20.4	14.4	48.7
Burma	1.7	2.9	11.8
Bangladesh	0.1	61.7	10.4
China	1.0	1.2	3.8
Mongolia	---	---	3.6
Indonesia	---	---	3.6
India	---	---	3.1
Philippines	---	0.2	2.1
All other destination markets	76.7	16.1	2.5
Total exports	100.0	100.0	100.0

Note.-- Data reported under subheadings includes some merchandise outside Commerce's scope. Import 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 2018 data.

Source: Official exports statistics under HS subheading 7308.20 as reported by Korea Customs and Trade Development Institution in the Global Trade Atlas database, accessed August 1, 2019.

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.[10] Usable responses to the Commission's questionnaire were received from one firm, CS Wind Vietnam.[11] This firm's exports to the United States were equivalent to all, or nearly all, of known U.S. imports of merchandise imported under HTS subheading 7308.20.0020, inclusive of wind towers and nonsubject merchandise, from Vietnam in 2018. According to estimates requested of the responding Vietnamese producers, the production of wind towers in Vietnam reported in questionnaires accounts for all, or nearly all, of known production of wind towers in Vietnam. Table VII-13 presents information on the wind tower operations of the responding producers and exporters in Vietnam.

Table VII-13
Wind towers: Summary data for producer CS Wind Vietnam, 2018

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	***	***	***	***	***	***
Total	***	***	***	***	***	***

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

Changes in operations

Table VII-14 presents operational and organizational changes reported by CS Wind Vietnam since January 1, 2016.

Table VII-14
Wind towers: Vietnamese producer CS Wind Vietnam's reported changes in operations, since January 1, 2016

Item / Firm	Reported changed in operations
Expansions:	
***	***

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

[10] These firms were identified through a review of information submitted in the petition and contained in *** records.

[11] Commerce has preliminarily found there to be up to two foreign producers/exporters of subject merchandise. *See Utility Scale Wind Towers From Canada, Indonesia, and the Socialist Republic of Vietnam: Initiation of Less-Than-Fair-Value Investigations*, 84 FR 38216, August 6, 2019. CS Wind however ***. See ***.

Operations on wind towers

Table VII-15 presents information on the wind tower operations of the responding producers / exporter CS Wind Vietnam. While CS Wind Vietnam reported ***, the firm reported fluctuating production, with ***. As a result, capacity utilization ***. CS Wind Vietnam ***. Overall, exports accounted for *** shipments of Vietnamese wind towers, and markets other than the United States, including Australia and the United Kingdom were the predominant destination in every full and partial period.[12]

[12] ***.

Table VII-15
Wind towers: Data for producer CS Wind Vietnam, 2016-18, January-March 2018, January-March 2019, and projections calendar years 2019 and 2020

Item	Actual experience					Projections	
	Calendar year			January to March		Calendar year	
	2016	2017	2018	2018	2019	2019	2020
	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

CS Wind Vietnam reported no production of other products on the same equipment and machinery used to produce wind towers.

Exports

According to GTA, the leading export markets for towers and lattice masts of iron or steel (including wind towers) from Vietnam by value are Australia, the United Kingdom, and the United States (table IV-16). In 2018 the United States was the third highest export market for these products from Vietnam, accounting for 9.1 percent, followed by Belgium.

Table VII-16
Towers and lattice masts of iron or steel: Exports from Vietnam, (constructed), 2016-18

Destination market	Calendar year		
	2016	2017	2018
	Value (1,000 dollars)		
United States	23,680	---	21,446
Australia	24,420	35,120	42,394
United Kingdom	7,149	---	35,308
Belgium	17,047	6,720	19,034
Sweden	---	---	8,935
Germany	---	5,207	8,267
France	5,480	3,450	8,114
South Korea	128	2,185	7,494
Thailand	5,328	1,403	1,383
All other destination markets	130,026	31,211	84,365
Total exports	213,257	85,296	236,740
	Share of value (percent)		
United States	11.1	---	9.1
Australia	11.5	41.2	17.9
United Kingdom	3.4	---	14.9
Belgium	8.0	7.9	8.0
Sweden	---	---	3.8
Germany	---	6.1	3.5
France	2.6	4.0	3.4
South Korea	0.1	2.6	3.2
Thailand	2.5	1.6	0.6
All other destination markets	61.0	36.6	35.6
Total exports	100.0	100.0	100.0

Note.--Data reported under subheadings includes some merchandise outside of the scope of this investigation. Import 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 2018 data.

Source: Official import statistics from Vietnam under HS subheading 7308.20 as reported by individual national customs authorities in the Global Trade Atlas database, accessed August 8, 2019.

SUBJECT COUNTRIES COMBINED

Table VII-17 presents summary data on wind tower operations of the reporting subject producers in the subject countries.

Table VII-17
Wind towers: Data on the industry in subject countries, 2016-18, January-March 2018, January-March 2019, and projections calendar years 2019 and 2020

Item	Actual experience					Projections	
	Calendar year			January to March		Calendar year	
	2016	2017	2018	2018	2019	2019	2020
	Quantity (towers)						
Capacity	2,346	2,569	2,601	655	667	2,675	2,533
Production	1,975	1,334	1,627	329	481	2,342	2,131
End-of-period inventories	199	50	129	168	124	115	75
Shipments:							
Home market shipments:							
Internal consumption/ transfers	***	***	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***	***	***
Total home market shipments	246	262	111	19	12	45	129
Export shipments to:							
United States	1,217	823	906	104	350	1,632	813
All other markets	429	398	532	78	158	686	1,238
Total exports	1,646	1,221	1,438	182	508	2,318	2,051
Total shipments	1,892	1,483	1,549	201	520	2,363	2,180
	Ratios and shares (percent)						
Capacity utilization	84.2	51.9	62.6	50.2	72.1	87.6	84.1
Inventories/production	10.1	3.7	7.9	12.8	6.4	4.9	3.5
Inventories/total shipments	10.5	3.4	8.3	20.9	6.0	4.9	3.4
Share of shipments:							
Home market shipments:							
Internal consumption/ transfers	***	***	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***	***	***
Total home market shipments	13.0	17.7	7.2	9.5	2.3	1.9	5.9
Export shipments to:							
United States	64.3	55.5	58.5	51.7	67.3	69.1	37.3
All other markets	22.7	26.8	34.3	38.8	30.4	29.0	56.8
Total exports	87.0	82.3	92.8	90.5	97.7	98.1	94.1
Total shipments	100.0	100.0	100.0	100.0	100.0	100.0	100.0

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

U.S. INVENTORIES OF IMPORTED MERCHANDISE

Table VII-18 presents data on U.S. importers' reported inventories of wind towers. There were ***.

Table VII-18
Wind towers: U.S. importers' inventories, 2016-18, January-March 2018, and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	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

As presented in Table VII-19, the Commission requested importers to indicate whether they imported or arranged for the importation of wind towers from Canada, Indonesia, Korea, and Vietnam after April 1, 2019.

Table VII-19
Wind towers: Arranged imports, April 2019 through March 2020

Item	Period				
	Apr-Jun 2019	Jul-Sept 2019	Oct-Dec 2019	Jan-Mar 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.[13] Neither 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.[14]

INFORMATION ON NONSUBJECT COUNTRIES

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 2016-18. *** reported importing from *** in China (a nonsubject country in these current investigations).[15] [16] *** reported importing from *** in Mexico and *** in Spain.[17] *** reported importing from tower manufacturers in Italy and Spain.[18]

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[13] 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.

[14] 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.

Counsel to Marmen explained that transportation costs restrict Marmen to certain regions of Canada and the United States. Staff conference transcript, p. 174 (Campbell).

[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] ***, importer questionnaire response.

[17] ***, importer questionnaire response.

[18] ***, importer questionnaire response.

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 Burma, Egypt, and Algeria (table VII-20). During 2018, the United States was the 41st-largest export market for these products from China, accounting for 0.2 percent of the total value in that year.

Table VII-20
Towers and lattice masts of iron or steel: Exports from China by destination market, 2016-18

Destination market	Calendar year		
	2016	2017	2018
	Value (1,000 dollars)		
United States	898	1,441	1,075
Burma	32,853	22,776	59,711
Egypt	91,174	93,626	52,319
Algeria	40,284	10,017	47,958
Japan	22,622	23,041	30,516
Mongolia	3,314	1,059	23,887
Laos	37,522	25,416	23,434
Pakistan	52,365	71,946	21,082
Philippines	25,337	41,761	19,561
All other destination markets	301,906	246,348	212,535
Total exports	608,276	537,430	492,077
	Share of value (percent)		
United States	0.1	0.3	0.2
Burma	5.4	4.2	12.1
Egypt	15.0	17.4	10.6
Algeria	6.6	1.9	9.7
Japan	3.7	4.3	6.2
Mongolia	0.5	0.2	4.9
Laos	6.2	4.7	4.8
Pakistan	8.6	13.4	4.3
Philippines	4.2	7.8	4.0
All other destination markets	49.6	45.8	43.2
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 August 9, 2019.

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, Austria, and France (table VII-21). During 2018, the United States was the 11th-largest export market for these products from Italy, accounting for 1.3 percent of the total value in that year.

Table VII-21
Towers and lattice masts of iron or steel: Exports from Italy by destination market, 2016-18

Destination market	Calendar year		
	2016	2017	2018
	Value (1,000 dollars)		
United States	---	1,009	921
Germany	9,382	19,390	26,156
Austria	4,819	3,091	8,505
France	24,013	19,673	7,736
Switzerland	4,651	4,947	5,272
Russia	142	617	3,093
Algeria	361	530	2,476
Denmark	196	362	1,687
Nigeria	---	---	1,204
All other destination markets	28,233	16,351	14,687
Total exports	71,797	65,969	71,737
	Share of value (percent)		
United States	---	1.5	1.3
Germany	13.1	29.4	36.5
Austria	6.7	4.7	11.9
France	33.4	29.8	10.8
Switzerland	6.5	7.5	7.3
Russia	0.2	0.9	4.3
Algeria	0.5	0.8	3.5
Denmark	0.3	0.5	2.4
Nigeria	---	---	1.7
All other destination markets	39.3	24.8	20.5
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 August 9, 2019.

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-22). During 2018, the United States was the largest export market for these products from Mexico, accounting for 93.4 percent, followed by Costa Rica, accounting for 2.4 percent of the total value in that year.

Table VII-22
Towers and lattice masts of iron or steel: Exports from Mexico by destination market, 2016-18

Destination market	Calendar year		
	2016	2017	2018
	Value (1,000 dollars)		
United States	12,875	18,755	16,772
Costa Rica	329	568	433
Guatemala	---	108	225
Brazil	---	95	193
Canada	---	---	135
Peru	---	220	95
Cuba	93	155	57
Spain	762	3,680	19
Colombia	---	19	17
All other destination markets	260	5,992	3
Total exports	14,319	29,591	17,949
	Share of value (percent)		
United States	89.9	63.4	93.4
Costa Rica	2.3	1.9	2.4
Guatemala	---	0.4	1.3
Brazil	---	0.3	1.1
Canada	---	---	0.8
Peru	---	0.7	0.5
Cuba	0.7	0.5	0.3
Spain	5.3	12.4	0.1
Colombia	---	0.1	0.1
All other destination markets	1.8	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 ENEGI in the Global Trade Atlas database, accessed August 9, 2019.

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 France and Germany (table VII-23). During 2018, the United States was the eighth-largest export market for these products from Spain, accounting for 2.9 percent, followed by Morocco, accounting for 2.0 percent of the total value in that year.

Table VII-23
Towers and lattice masts of iron or steel: Exports from Spain by destination market, 2016-18

Destination market	Calendar year		
	2016	2017	2018
	Value (1,000 dollars)		
United States	24,744	16,457	9,287
France	22,373	8,167	75,173
Germany	8,011	9,355	55,012
Greece	349	8,218	29,131
Sweden	15	591	27,279
Denmark	15,426	20,765	26,423
United Kingdom	29,790	8,971	24,851
Italy	3,532	8,503	18,497
Morocco	20,835	5,084	6,353
All other destination markets	118,128	73,039	45,099
Total exports	243,204	159,150	317,103
	Share of value (percent)		
United States	10.2	10.3	2.9
France	9.2	5.1	23.7
Germany	3.3	5.9	17.3
Greece	0.1	5.2	9.2
Sweden	0.0	0.4	8.6
Denmark	6.3	13.0	8.3
United Kingdom	12.2	5.6	7.8
Italy	1.5	5.3	5.8
Morocco	8.6	3.2	2.0
All other destination markets	48.6	45.9	14.2
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 August 9, 2019.

Global exports

Table VII-24 presents data on global exports of towers and lattice masts of iron or steel (including wind towers) during 2016-18. China (17.6 percent), Denmark (12.1 percent), and Spain (11.4 percent) were the largest exporters (in terms of value) of towers and lattice masts of iron or steel in 2018, and together accounted for 41.1 percent of global exports of these products that year.

Table VII-24
Towers and lattice masts of iron or steel: Global exports by supplying countries, 2016-18

Exporter	Calendar year		
	2016	2017	2018
	Value (1,000 dollars)		
United States	45,739	38,978	30,927
Canada	138,436	63,462	107,740
Indonesia	110,532	49,748	81,912
Korea	22,512	9,619	5,673
Vietnam	127,050	97,259	---
China	608,276	537,430	492,077
Denmark	367,905	484,351	336,982
Spain	243,204	159,150	317,103
India	264,266	321,510	256,844
Turkey	163,852	183,592	240,796
Germany	340,753	158,224	197,791
Portugal	102,701	102,838	95,718
Italy	71,797	65,969	71,737
Malaysia	4,616	8,761	60,504
Sweden	71,610	64,821	53,527
Poland	14,576	20,460	52,194
All other exporters	410,069	408,560	389,387
Total	3,107,893	2,774,733	2,790,912
	Share of value (percent)		
United States	1.5	1.4	1.1
Canada	4.5	2.3	3.9
Indonesia	3.6	1.8	2.9
Korea	0.7	0.3	0.2
Vietnam	4.1	3.5	---
China	19.6	19.4	17.6
Denmark	11.8	17.5	12.1
Spain	7.8	5.7	11.4
India	8.5	11.6	9.2
Turkey	5.3	6.6	8.6
Germany	11.0	5.7	7.1
Portugal	3.3	3.7	3.4
Italy	2.3	2.4	2.6
Malaysia	0.1	0.3	2.2
Sweden	2.3	2.3	1.9
Poland	0.5	0.7	1.9
All other exporters	13.2	14.7	14.0
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 730820, reported by national customs authorities, in the Global Trade Atlas database, accessed August 9, 2019.

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 45171, August 28, 2019	*Utility Scale Wind Towers From Canada, Indonesia, Korea, and Vietnam: Preliminary Affirmative Determinations*	https://www.govinfo.gov/content/pkg/FR-2019-08-28/pdf/2019-18562.pdf

APPENDIX B

LIST OF STAFF CONFERENCE WITNESSES

CALENDAR OF PUBLIC PRELIMINARY CONFERENCE

Those listed below appeared as witnesses at the United States International Trade Commission's preliminary conference:

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

Inv. Nos.: 701-TA-627-629 and 731-TA-1458-1461 (Preliminary)

Date and Time: July 30, 2019 - 9:30 a.m.

Sessions were held in connection with these preliminary phase investigations in Hearing Room C (2nd Floor), 500 E Street, SW., Washington, DC.

OPENING REMARKS:

In Support of Imposition (**Alan H. Price**, Wiley Rein LLP)
In Opposition to Imposition (**Jay C. Campbell**, White & Case)

In Support of the Imposition of Antidumping Duty and Countervailing Duty Orders:

Wiley Rein LLP
Washington, DC
on behalf of

Wind Tower Trade Coalition

Kerry Cole, President of Energy Equipment, Arcosa, Inc.

Dennis Janda, Broadwind Towers, Inc.

Wesley Bourland, Senior Vice President and General Manager, Arcosa, Inc.

Alan H. Price)
Daniel B. Pickard) – OF COUNSEL
Robert E. DeFrancesco, III)

In Opposition to the Imposition of
Antidumping Duty and Countervailing Duty Orders:

White & Case
Washington, DC
on behalf of

Marmen Inc., Marmen Énergie Inc., and Marmen Energy Co.
(collectively, "Marmen")

Patrick Pellerin, President, Marmen Inc.

Vincent Trudel, Vice-President – Operations, Marmen Inc.

Jay C. Campbell)
) – OF COUNSEL
Ting-Ting Kao)

Alston & Bird LLP
Washington, DC
on behalf of

American Wind Technology, Inc.
Vestas Towers America, Inc. ("Vestas")

Jon Chase, Vice President, Public Affairs, Vestas

Jason Waite) – OF COUNSEL

American Wind Energy Association
Washington, DC

Amy Farrell, Senior Vice President of Government and Public Affairs,
American Wind Energy Association

REBUTTAL/CLOSING REMARKS:

In Support of Imposition (**Daniel B. Pickard**, Wiley Rein LLP)
In Opposition to Imposition (**Jay C. Campbell** and **Ting-Ting Kao** White & Case;
Jason Waite, Alston & Bird LLP; and **Amy Farrell,** American Wind Energy Association)

-END-

APPENDIX C

SUMMARY DATA

Table C-1
Wind towers: Summary data concerning the total U.S. market, 2016-18, January to March 2018, and January to March 2019
(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			January to March		Calendar year			Jan-Mar
	2016	2017	2018	2018	2019	2016-18	2016-17	2017-18	2018-19
U.S. consumption quantity:									
Amount	***	***	***	***	***	***	***	***	***
Producers' share (fn1)	***	***	***	***	***	***	***	***	***
Importers' share (fn1):									
Canada	***	***	***	***	***	***	***	***	***
Indonesia	***	***	***	***	***	***	***	***	***
Korea	***	***	***	***	***	***	***	***	***
Vietnam	***	***	***	***	***	***	***	***	***
Subject sources	***	***	***	***	***	***	***	***	***
Nonsubject sources	***	***	***	***	***	***	***	***	***
All import sources	***	***	***	***	***	***	***	***	***
U.S. 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 of imports 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	***	***	***	***	***	***	***	***	***
Vietnam:									
Quantity	***	***	***	***	***	***	***	***	***
Value	***	***	***	***	***	***	***	***	***
Unit value	***	***	***	***	***	***	***	***	***
Ending inventory quantity	***	***	***	***	***	***	***	***	***
Subject sources:									
Quantity	1,113	1,010	848	125	256	(23.8)	(9.3)	(16.0)	104.8
Value	322,610	272,245	249,039	32,228	65,626	(22.8)	(15.6)	(8.5)	103.6
Unit value	$289,856	$269,550	$293,678	$257,824	$256,352	1.3	(7.0)	9.0	(0.6)
Ending inventory quantity	***	***	***	***	***	***	***	***	***
Nonsubject sources:									
Quantity	***	***	***	***	***	***	***	***	***
Value	***	***	***	***	***	***	***	***	***
Unit value	***	***	***	***	***	***	***	***	***
Ending inventory quantity	***	***	***	***	***	***	***	***	***
All import sources:									
Quantity	***	***	***	***	***	***	***	***	***
Value	***	***	***	***	***	***	***	***	***
Unit value	***	***	***	***	***	***	***	***	***
Ending inventory quantity	***	***	***	***	***	***	***	***	***

Table continued on next page.

Table C-1--Continued
Wind towers: Summary data concerning the total U.S. market, 2016-18, January to March 2018, and January to March 2019
(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			January to March		Calendar year			Jan-Mar
	2016	2017	2018	2018	2019	2016-18	2016-17	2017-18	2018-19
U.S. producers':									
Average capacity quantity	3,854	4,089	4,136	1,026	1,046	7.3	6.1	1.1	1.9
Production quantity	3,087	2,765	2,679	631	734	(13.2)	(10.4)	(3.1)	16.3
Capacity utilization (fn1)	80.1	67.6	64.8	61.5	70.2	(15.3)	(12.5)	(2.8)	8.7
U.S. shipments:									
Quantity	3,118	2,666	2,699	668	712	(13.4)	(14.5)	1.2	6.6
Value	1,008,336	846,177	868,294	209,189	222,313	(13.9)	(16.1)	2.6	6.3
Unit value	$323,392	$317,396	$321,710	$313,157	$312,237	(0.5)	(1.9)	1.4	(0.3)
Export shipments:									
Quantity	---	---	---	---	---	---	---	---	---
Value	---	---	---	---	---	---	---	---	---
Unit value	---	---	---	---	---	---	---	---	---
Ending inventory quantity	107	206	186	169	208	73.8	92.5	(9.7)	23.1
Inventories/total shipments (fn1)	3.4	7.7	6.9	6.3	7.3	3.5	4.3	(0.8)	1.0
Production workers	2,241	2,312	2,155	2,166	2,108	(3.8)	3.2	(6.8)	(2.7)
Hours worked (1,000s)	4,608	4,858	4,415	1,135	1,114	(4.2)	5.4	(9.1)	(1.9)
Wages paid ($1,000)	155,061	159,900	156,794	38,907	38,696	1.1	3.1	(1.9)	(0.5)
Hourly wages (dollars per hour)	$33.65	$32.91	$35.51	$34.28	$34.74	5.5	(2.2)	7.9	1.3
Productivity (units per 10,000 hours)	6.7	5.7	6.1	5.6	6.6	(9.4)	(15.0)	6.6	18.5
Unit labor costs	$50,230	$57,830	$58,527	$61,659	$52,719	16.5	15.1	1.2	(14.5)
Net sales:									
Quantity	3,118	2,666	2,699	668	712	(13.4)	(14.5)	1.2	6.6
Value	1,008,336	846,177	868,294	209,189	222,313	(13.9)	(16.1)	2.6	6.3
Unit value	$323,392	$317,396	$321,710	$313,157	$312,237	(0.5)	(1.9)	1.4	(0.3)
Cost of goods sold (COGS)	833,654	706,376	766,307	189,433	195,046	(8.1)	(15.3)	8.5	3.0
Gross profit or (loss)	174,682	139,801	101,987	19,756	27,267	(41.6)	(20.0)	(27.0)	38.0
SG&A expenses	26,459	28,110	25,315	7,055	6,193	(4.3)	6.2	(9.9)	(12.2)
Operating income or (loss)	148,223	111,691	76,672	12,701	21,074	(48.3)	(24.6)	(31.4)	65.9
Net income or (loss)	126,747	85,939	53,252	5,875	14,157	(58.0)	(32.2)	(38.0)	141.0
Capital expenditures	70,185	41,414	27,205	***	4,892	(61.2)	(41.0)	(34.3)	(72.9)
Unit COGS	$267,368	$264,957	$283,923	$283,582	$273,941	6.2	(0.9)	7.2	(3.4)
Unit SG&A expenses	$8,486	$10,544	$9,379	$10,561	$8,698	10.5	24.3	(11.0)	(17.6)
Unit operating income or (loss)	$47,538	$41,895	$28,408	$19,013	$29,598	(40.2)	(11.9)	(32.2)	55.7
Unit net income or (loss)	$40,650	$32,235	$19,730	$8,795	$19,883	(51.5)	(20.7)	(38.8)	126.1
COGS/sales (fn1)	82.7	83.5	88.3	90.6	87.7	5.6	0.8	4.8	(2.8)
Operating income or (loss)/sales (fn1)	14.7	13.2	8.8	6.1	9.5	(5.9)	(1.5)	(4.4)	3.4
Net income or (loss)/sales (fn1)	12.6	10.2	6.1	2.8	6.4	(6.4)	(2.4)	(4.0)	3.6

Notes:

Note.--Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as "---".

fn1.--Reported data are in percent and period changes are in percentage points.

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

Table C-2
Wind towers: Summary data concerning the merchant U.S. market, 2016-18, January to March 2018, and January to March 2019
(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			January to March		Calendar year			Jan-Mar
	2016	2017	2018	2018	2019	2016-18	2016-17	2017-18	2018-19
U.S. consumption quantity:									
Amount	***	***	***	***	***	***	***	***	***
Producers' share (fn1)	***	***	***	***	***	***	***	***	***
Importers' share (fn1):									
Canada	***	***	***	***	***	***	***	***	***
Indonesia	***	***	***	***	***	***	***	***	***
Korea	***	***	***	***	***	***	***	***	***
Vietnam	***	***	***	***	***	***	***	***	***
Subject sources	***	***	***	***	***	***	***	***	***
Nonsubject sources	***	***	***	***	***	***	***	***	***
All import sources	***	***	***	***	***	***	***	***	***
U.S. consumption value:									
Amount	***	***	***	***	***	***	***	***	***
Producers' share (fn1)	***	***	***	***	***	***	***	***	***
Importers' share (fn1):									
Canada	***	***	***	***	***	***	***	***	***
Indonesia	***	***	***	***	***	***	***	***	***
Korea	***	***	***	***	***	***	***	***	***
Vietnam (subject)	***	***	***	***	***	***	***	***	***
Subject sources	***	***	***	***	***	***	***	***	***
Nonsubject sources	***	***	***	***	***	***	***	***	***
All import sources	***	***	***	***	***	***	***	***	***
U.S. importers' U.S. shipments of imports 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	***	***	***	***	***	***	***	***	***
Vietnam:									
Quantity	***	***	***	***	***	***	***	***	***
Value	***	***	***	***	***	***	***	***	***
Unit value	***	***	***	***	***	***	***	***	***
Ending inventory quantity	***	***	***	***	***	***	***	***	***
Subject sources:									
Quantity	1,113	1,010	848	125	256	(23.8)	(9.3)	(16.0)	104.8
Value	322,610	272,245	249,039	32,228	65,626	(22.8)	(15.6)	(8.5)	103.6
Unit value	$289,856	$269,550	$293,678	$257,824	$256,352	1.3	(7.0)	9.0	(0.6)
Ending inventory quantity	***	***	***	***	***	***	***	***	***
Nonsubject sources:									
Quantity	***	***	***	***	***	***	***	***	***
Value	***	***	***	***	***	***	***	***	***
Unit value	***	***	***	***	***	***	***	***	***
Ending inventory quantity	***	***	***	***	***	***	***	***	***
All import sources:									
Quantity	***	***	***	***	***	***	***	***	***
Value	***	***	***	***	***	***	***	***	***
Unit value	***	***	***	***	***	***	***	***	***
Ending inventory quantity	***	***	***	***	***	***	***	***	***

Table continued on next page.

Table C-2--Continued

Wind towers: Summary data concerning the merchant U.S. market, 2016-18, January to March 2018, and January to March 2019

(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			January to March		Calendar year			Jan-Mar
	2016	2017	2018	2018	2019	2016-18	2016-17	2017-18	2018-19
U.S. shipments:									
Quantity	***	***	***	***	***	***	***	***	***
Value	***	***	***	***	***	***	***	***	***
Unit value	***	***	***	***	***	***	***	***	***
Net sales:									
Quantity	***	***	***	***	***	***	***	***	***
Value	***	***	***	***	***	***	***	***	***
Unit value	***	***	***	***	***	***	***	***	***
Cost of goods sold (COGS)	***	***	***	***	***	***	***	***	***
Gross profit or (loss)	***	***	***	***	***	***	***	***	***
SG&A expenses	***	***	***	***	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***	***	***	***	***
Net income or (loss)	***	***	***	***	***	***	***	***	***
Capital expenditures	***	***	***	***	***	***	***	***	***
Unit COGS	***	***	***	***	***	***	***	***	***
Unit SG&A expenses	***	***	***	***	***	***	***	***	***
Unit operating income or (loss)	***	***	***	***	***	***	***	***	***
Unit net income or (loss)	***	***	***	***	***	***	***	***	***
COGS/sales (fn1)	***	***	***	***	***	***	***	***	***
Operating income or (loss)/sales (fn1)	***	***	***	***	***	***	***	***	***
Net income or (loss)/sales (fn1)	***	***	***	***	***	***	***	***	***

Notes:

Note.--Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and

fn1.--Reported data are in percent and period changes are in percentage points.

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

APPENDIX D

***

In 2016, the Commission reviewed the antidumping and countervailing duty orders on China and Vietnam. In those reviews, ***.

Table D-1
Wind towers: *

* * * * * * *

APPENDIX E

U.S. PRODUCTION BY ESTABLISHMENT

Appendix E-1
Wind towers: U.S. producers' capacity, production, and capacity utilization by establishment, 2016-18, January-March 2018 and January-March 2019

Item	Calendar year			January to March	
	2016	2017	2018	2018	2019
	Capacity (towers)				
Arcosa (Clinton, Illinois)	***	***	***	***	***
Arcosa (Newton, Iowa)	***	***	***	***	***
Arcosa (Tulsa, Oklahoma)	***	***	***	***	***
Arcosa (West Fargo, North Dakota)	***	***	***	***	***
Broadwind (Abilene, TX)	***	***	***	***	***
Broadwind (Manitowoc, WI)	***	***	***	***	***
GRI (Amarillo, TX)	***	***	***	***	***
Ventower (Monroe, MI)	***	***	***	***	***
Vestas (Pueblo, CO)	***	***	***	***	***
Marmen (Brandon, SD)	***	***	***	***	***
	Production (towers)				
Arcosa (Clinton, Illinois)	***	***	***	***	***
Arcosa (Newton, Iowa)	***	***	***	***	***
Arcosa (Tulsa, Oklahoma)	***	***	***	***	***
Arcosa (West Fargo, North Dakota)	***	***	***	***	***
Broadwind (Abilene, TX)	***	***	***	***	***
Broadwind (Manitowoc, WI)	***	***	***	***	***
GRI (Amarillo, TX)	***	***	***	***	***
Ventower (Monroe, MI)	***	***	***	***	***
Vestas (Pueblo, CO)	***	***	***	***	***
Marmen (Brandon, SD)	***	***	***	***	***
	Capacity utilization (percent)				
Arcosa (Clinton, Illinois)	***	***	***	***	***
Arcosa (Newton, Iowa)	***	***	***	***	***
Arcosa (Tulsa, Oklahoma)	***	***	***	***	***
Arcosa (West Fargo, North Dakota)	***	***	***	***	***
Broadwind (Abilene, TX)	***	***	***	***	***
Broadwind (Manitowoc, WI)	***	***	***	***	***
GRI (Amarillo, TX)	***	***	***	***	***
Ventower (Monroe, MI)	***	***	***	***	***
Vestas (Pueblo, CO)	***	***	***	***	***
Marmen (Brandon, SD)	***	***	***	***	***