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September 27, 2017

BY HAND DELIVERY

The Honorable Lisa R. Barton
Secretary
U.S. International Trade Commission
500 E Street, S.W.
Washington, DC 20436

NON-CONFIDENTIAL VERSION
Inv. No.: TA-201-075

Confidential Business Information for Which Proprietary Treatment Has Been Requested Has Been Deleted at Pages 4, 5, 6, 8, 9, 11, 18, 19, 30, 36, 42, 43, 44, 45 and at Exhibits 2A, 2B, 2D, 2H, 3, 4.

Re: Petition for Global Safeguard Relief Pursuant to Sections 201-202 of the Trade Act of 1974 - Crystalline Silicon Photovoltaic Cells (Whether or Not Partially or Fully Assembled into Other Products) : Pre-hearing Brief on Remedy of Suniva, Inc.

Dear Secretary Barton:

On behalf of Suniva, Inc. ("Suniva"), we hereby submit a pre-hearing brief on remedy in the above-referenced global safeguard action that was initiated on May 17, 2017.[1]

Pursuant to 19 C.F.R. § 201.6 of the Commission's regulations, Suniva requests proprietary treatment for certain information in this brief which we designate by placing it within brackets. All of the bracketed information is proprietary and not otherwise available to the public. Any disclosure to the public of such proprietary information would result in serious and

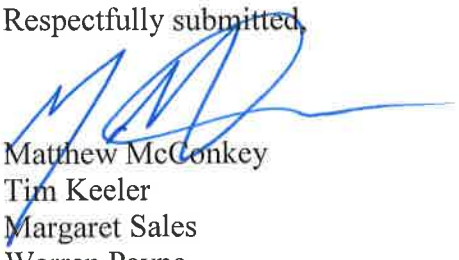
[1] Suniva initially submitted a petition to the Commission on April 26, 2017. In a May1, 2017 letter, the Commission requested that Suniva clarify the description of the imported articles, provide more details about petitioner's representativeness of the industry, and supply additional data on the domestic industry's performance indicators. On May 12, 2017, Suniva provided the requested information to the Commission. In response to telephone conferences held with Commission staff on May 15, 2017 and May 17, 2017, Suniva further amended its petition on May 17, 2017, to provide a revised description of the imported articles. As such, the Commission determined that the petition, as amended, was properly filed as of May 17, 2017. In this pre-hearing brief, the petition is referred to as the "201 Petition."

substantial harm to the competitive position of the source of the information and would impair the ability of the Commission to obtain information necessary to fulfill their statutory functions.

Also, attached to this cover letter are counsel certifications regarding the completeness and accuracy of the information contained in the letter, as required by 19 C.F.R. § 206.8.

If you have any questions regarding this submission, please contact the undersigned.

Respectfully submitted,



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MAYER BROWN LLP
On behalf of Suniva, Inc.

CERTIFICATION OF COUNSEL

City of Washington)
) ss
District of Columbia)

In accordance with section 206.8 of the Commission's rules, I, Matthew McConkey, of Mayer Brown LLP, counsel to petitioner, Suniva, Inc., certify that I have read the attached submission, and the information contained in this submission is accurate and complete to the best of my knowledge.

I, further certify that pursuant to 19 C.F.R. § 201.6(b)(3)(iii) of the Commission's rules, that to the best of my knowledge and belief, information substantially identical to that for which proprietary treatment has been requested in this submission is not available to the general public.

Matthew McConkey

Subscribed and sworn to before me on this 27th day of September 2017.

Notary Public

ROBIN L. ALGOOD NOTARY PUBLIC

725306082

Non-Confidential Version

INV. NO.: TA-201-075

Public Certificate Of Service

This is to certify that I have on this 28th day of September, 2017 caused a copy of the non-confidential version of Petitioners' Prehearing Brief on Remedy to be served upon the following parties via first class mail, unless otherwise noted:

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Robin L. Algood

Non-Confidential Version

Inv. No. TA-201-075

NON-CONFIDENTIAL VERSION

BEFORE THE
UNITED STATES INTERNATIONAL TRADE COMMISSION

IN THE MATTER OF:	)
CRYSTALLINE SILICON PHOTOVOLTAIC CELLS (WHETHER OR NOT PARTIALLY OR FULLY ASSEMBLED INTO OTHER PRODUCTS)	)

SUNIVA'S PRE-HEARING BRIEF ON REMEDY

September 27, 2017

TABLE OF CONTENTS

I. INTRODUCTION

On September 22, 2017, the U.S. International Trade Commission (the "Commission") unanimously determined that, pursuant to section 202 of the Trade Act of 1974, increased imports of crystalline silicon photovoltaic ("CSPV") cells (whether or not partially or fully assembled into other products) are a substantial cause of serious injury to the domestic industry. Following an affirmative determination of serious injury, the statute directs the Commission to "recommend the action that would address the serious injury, or threat thereof, to the domestic industry and be most effective in facilitating the efforts of the domestic industry to make a positive adjustment to import competition."[1] The Commission may recommend the following forms of remedy:

> (a) a tariff duty increase, (b) a tariff-rate quota, (c) modification or imposition of quantitative restrictions, (d) appropriate adjustment measures (including trade adjustment assistance), or (e) any combination of (a) through (d).[2]

In addition, the Commission may recommend that the President initiate international negotiations to address the underlying cause of the increase in imports, or that the President implement any other action authorized under law that is likely to facilitate positive adjustment to import competition.[3]

In making its remedy recommendation, the law is very clear. That is, the Commission is obligated to take into account:

(1) The form and amount of the action that will remedy the serious injury to the domestic industry;
(2) The objectives and commitments to positive adjustment submitted by the domestic industry firms and workers;

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1 19 U.S.C. § 2252(e)(1).

2 19 U.S.C. § 2252(e)(2).

3 19 U.S.C. § 2252(e)(4) (A) and (B).

(3) Information available to the Commission concerning the conditions of competition in both the domestic and world markets and the likely developments affecting such conditions during the remedy period; and

(4) Whether international negotiations may be constructive to address the serious injury to the domestic industry or facilitate positive adjustment.[4]

The crisis caused by foreign market overcapacity now facing the U.S. CSPV cell and module industry is so extreme, the financial losses so great, that, to be effective, any remedy that is recommended to the President by the Commission must be bold, extensive, and multifaceted. Indeed, the industry has suffered staggering losses in revenue and profit because of the import surges (in great part due to China's overt and targeted mercantilist onslaught), and now is in such a severely weakened financial condition that almost 30 companies having gone out of business since 2012. The two major remaining companies that have been able to survive, Suniva, Inc. ("Suniva") and SolarWorld Americas, Inc. ("SolarWorld"), are very weakened. Again, the Commission's obligation under section 201 is to recommend a remedy that is focused solely on addressing the serious injury suffered by the petitioning domestic industry, and to recommend measures that are most effective in facilitating the efforts of the domestic industry to make a positive adjustment to import competition. If this were a normal case, the Commission could address the serious injury experienced by the domestic industry by the application of a single measure alone - tariffs, quotas, or tariff-rate quotas. But this is not a normal case. The industry, having been deprived of the financial benefits of high demand over the last several years due to a low-priced import surge caused by foreign market distortions, now finds itself in perilous financial difficulty. To fulfill the statutory mandate -- addressing the injury and providing an effective means to adjust to import competition -- the Commission needs to recommend a

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[4] 19 U.S.C. § 2252(e)(5). Note that considerations of the relief's probable effectiveness in promoting industry adjustment to import competition; the relief's effect on consumers; the relief's effect on United States international economic interests; and the economic and social costs incurred by taxpayers, communities, and workers of import relief are reserved for the President's consideration. 19 U.S.C. § 2252(c), § 2253(a) . That is, they are not factors considered by the Commission.

multifaceted remedy. Put simply, a strong and effective remedy is required to stop the industry's bleeding, and then provide breathing space for this American-invented, manufacturing technology to grow and thrive. The below recommendations do just that.

II. SUNIVA'S REMEDY RECOMMENDATIONS

At Exhibit 1 hereto, Suniva provides a summary of its remedy recommendations to the Commission (as detailed below).

A. Per Watt Tariffs And Module Price Floor

1. Per Watt Tariffs

With respect to tariffs, Suniva recommends a remedy of $0.25 per watt on CSPV cells and $0.32 per watt on CSPV modules.[5] As discussed below, these tariffs are needed to address the serious injury confronting the domestic industry. Returning imports to normal volumes not distorted by foreign market overcapacity through the imposition of tariffs that are sufficiently high to deter evasion or avoidance is critical if the total market supply – and U.S. producers' prices – are to stabilize.

To correct the ongoing deterioration in the U.S. industry's financial performance, and to provide it with a reasonable and appropriate remedy to the serious injury inflicted by imports, Suniva urges the Commission to recommend four-year specific tariffs on CSPV cells and CSPV modules. To ensure the recovery of the U.S. industry, Suniva seeks a remedy geared towards returning prices to a level at which the domestic industry was profitable, while taking into account projected U.S. demand in 2018.

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[5] *See* Section II.A.4, below, for an explanation as to why the per watt tariffs are lower than that requested in the original 201 petition. Also, we note that these tariffs are below the 50 percent threshold permitted under the statute.19 U.S.C. § 2253(e)(3). The threshold calculations are based on the weighted average unit value of CSPV products during 2013 to 2015.

The first part of such a remedy is a tariff (the second part, the proposed floor price, is described *infra*). To calculate the tariff, Suniva has used 2013 to 2015 as the reference period, as shown in the table below. Because of the conditions of competition in this industry during the period of investigation, as well as the domestic industry's substantial losses during the period, Suniva requests that the maximum allowable tariff of $0.32 per watt be applied to CSPV modules imports from the covered countries in 2018.

Calculation of the reference period threshold tariff for CSPV products[6]

	2013-2015
Quantity (kW)	16,114,703
Value ($1,000)	10,197,183
50%*AUV ($/watt)	**0.32**

In the fourth quarter of 2015, [ ] GW of solar modules were installed in the United States, representing the [ ] for installations in U.S. history.[7] As shown below, during this quarter, U.S. module prices ranged from [ ]:

U.S. CSPV Module Pricing In 2015:Q4[8]

	2015:Q4
	Cents per Watt
SEIA Report 2017:Q1	[ ]
Product 2	[ ]
Product 3	[ ]
Product 4	[ ]
Product 5	[ ]

[6] Staff Report of the U.S. International Trade Commission, Inv. No. TA-201-075 at C-3 (Table C-1) (Sept. 11, 2017) ("Staff Report").

[7] Solar Energy Industries Association, *Solar Market Insight Report (Q4 2016)* at 3, excerpts attached at Exhibit 2A; Solar Energy Industries Association, *Solar Market Insight Report (Q2 2017)*, at 78, excerpts attached at Exhibit 2B. [ ]

[8] Solar Energy Industries Association, *Solar Market Insight Report (Q4 2015)*, excerpts attached at Exhibit 2C; Staff Report at V-36 to V-39, Tables V-13 to V-16.

[

].[9] While CSPV product hoarding as a result of this proceeding has driven prices higher recently,[10] once such stockpiling ceases, global prices are likely to return to the $0.35 - $0.40 per watt range, due largely to weaker demand in China—the same scenario that occurred during the second half of 2016.[11]

A tariff of $0.32 per watt on modules would bring prices in line with those that existed during the fourth quarter of 2015 [

].

Estimated effect of a specific tariff on modules of $0.32 per watt on market price levels[12]

	Price	Price + 32¢/watt Specific Tariff
U.S. module price {a}	[	]
Tier 1 China DDP (average) to U.S{b}	[	]
Global blended price, June 2017 {c}	[	]

As demonstrated above, the proposed $0.32 per watt tariff is equivalent to 50 percent of the average unit value for the representative period, and is therefore consistent with the statute under

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9 Solar Energy Industries Association, *Solar Market Insight Report (Q2 2017)* at 79, excerpts attached at Exhibit 2B.

10 *See* Joe Ryan and Chris Martin, *Solar Developers Hoard Panels as U.S. Tariff Threat Looms*, Bloomberg (Sept. 11, 2017), attached at Exhibit 2E (reporting the solar developers are suspending construction as the threat of U.S. import tariffs "has driven up pricing and spurred hoarding"); FBR Capital Markets & Co., *Total Eclipse: Previewing Solar 201 Trade-Case Options*, at 4 (2017), attached at Exhibit 9(reporting that inventory hoarding is evident from the spike in U.S. prices from the mid-$0.30 per watt global average to $0.50 per watt); Frank Andorka, *On this episode of solar hoarders: Developers gobble panels before possible price hike*, pv magazine (Sept. 14, 2017), attached at Exhibit 2F; Nichola Groom, *Prospect of Trump tariff casts pall over U.S. solar industry*, Reuters (July 25, 2017), attached at Exhibit 2G (reporting that "U.S. solar companies are snapping up cheap imported solar panels ahead of a trade decision by the Trump administration . . . ." and that "{p}anic buying has sent spot prices for solar panels up as much as 20 percent in recent weeks as installers rush to lock up supplied ahead of potential tariffs.").

11 Notably, current module prices have spiked to as high as $0.50 per watt due to hoarding, indicative of the ability of the market to absorb such increases in module prices.

12 Solar Energy Industries Association, *Solar Market Insight Report (Q2 2017)* {a}, excerpts attached at Exhibit 2B; GTM Research, *PV Pulse (July 2017)*, tabs 2A {c} and 2D {b}, excerpts attached at Exhibit 2H.

19 U.S.C. § 2253(e)(3). Moreover, as Exhibit 2D demonstrates, the proposed tariff would increase system prices back to the level that prevailed in the first quarter of 2016.

Suniva is also proposing a $0.25 per watt tariff on imports of CSPV cells. This tariff is lower than the 50 percent threshold of AUVs for CSPV products during the reference period of 2013 to 2015. Furthermore, the requested duty is less than the 50 percent of the cell average unit value of [ ].[13]

The statute requires that the President phase down the imposed remedy at regular intervals during the relief period.[14] For the subsequent years of relief Suniva requests the following CSPV cell and module tariffs:

- $0.245 per watt for cells and $0.31 per watt for modules year 2
- $0.24 per watt for cells and $0.30 per watt for modules in year 3, and
- $0.235 per watt for cells and $0.29 per watt for modules in year 4.

This sequence would be consistent with the President's discretion to determine the appropriate scope and phasing of the remedy,[15] and is designed to match roughly the anticipated pace at which demand will increase relative to capacity, thereby relieving the conditions that led to surging imports and serious injury in the first place.

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13 *See* Staff Report at Table V-17.

14 19 U.S.C. § 2253(e)(5) ("An action . . . that has an effective period of more than 1 year shall be phased down at regular intervals during the period in which the action is in effect.").

15 *See* Statement of Administrative Action accompanying the Uruguay Round Agreements Act, H.R. Doc. No. 103-316, vol. 1 (1994) at 293, *reprinted in* 1994 U.S.C.C.A.N. 4040, 4266 ("The President will retain the discretion to determine the appropriate 'regular intervals' and the amount by which the relief is phased down at those intervals.").

2. Floor Price On Modules

With respect to a floor price on modules, Suniva recommends a minimum floor price of $0.74 per watt.[16] Suniva believes that a minimum floor price is necessary to remedy the serious injury inflicted by foreign market overcapacity.

Foreign producers have demonstrated both an ability, and a willingness, to sell below cost as a means of seizing market share from domestic manufacturers. Thus, foreign producers are also likely to lower their prices as a means of absorbing the impact of any tariff imposed as a result of this 201 investigation.[17] In addition, a minimum floor price would prevent foreign producers from moving value from the CSPV cell to the module. Such action on the part of foreign producers can be remedied through the application of a minimum floor price.

As noted below, the statute allows the adoption of a reference period that is appropriate to remedy the harm to the domestic industry. Suniva requests that, for purposes of calculating the minimum floor price for module imports, the 2013-2015 period be adopted as the reference period. As noted at the injury hearing and in Suniva's prehearing injury brief, 2015 represented a period of some market stability and less non-economic distortions due to the discipline the antidumping and countervailing duty orders had on prices.[18] Therefore, it is vital that 2015 be included in the reference period. 2012 represents a period prior to the imposition of antidumping and countervailing duties initially imposed in *CSPV 1*.[19] 2016 represents the height of the import

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[16] *See* Section II.A.4, below, for an explanation as to why this floor price is lower than that requested in the original 201 petition.

[17] *See* Exhibit 3 (Matt Card Affidavit).

[18] *See e.g.*, Hearing in *Crystalline Silicon Photovoltaic Cells, Whether Or Not Partially or Fully Assembled Into Other Products*, Inv. No. TA-201-075 (Aug. 15, 2017) ("Tr.") at 84 (Brightbill), Tr. at 169 (Kaplan), Tr. at 191 (Shea), Tr. at 193 (Kaplan) and Tr. at 224 (Card) and Suniva's Pre-Hearing Brief in Support of Finding Serious Injury at 39, 40, 60 (Aug. 8, 2017) ("Suniva Pre-Hearing Br.").

[19] *Crystalline Silicon Photovoltaic Cells and Modules from China,* USITC Pub. 4360, Inv. Nos. 701-TA-481and 731-TA-1190 (Final) (November 2012) *(hereinafter "CSPV 1").*

surge. Therefore, these two years should not be included in the reference period. Thus, the 2013-2015 period is the most appropriate reference period. Using the 2013-15 period as the reference period, an analysis of the module pricing data (products 2 - 5) collected by the Commission shows that module prices averaged [ ] per watt.[20] Therefore, the appropriate benchmark price to use for the minimum floor price is $0.74 per watt. For the subsequent years of relief Suniva requests a minimum floor price of:

- $0.70 per watt in year 2,
- $0.66 per watt in year 3, and
- $0.64 per watt in year 4.

This will result in the stabilization of the domestic industry, and create the dynamics for domestic production growth and profitability.[21]

3. Four Year Period Requested For Both Per Watt Tariffs And Module Price Floor

For each remedy as set forth above in items II.A.1 and II.A.2, Suniva submits that the Commission should recommend that its remedy extend for the full four years authorized by law.[22] Given the degree of injury suffered by the domestic CSPV cell and module industry (financial losses, loss of market share, bankruptcies and plant closures, loss of jobs, etc.), the industry should be afforded the full four years to generate profits sufficient to stabilize, make necessary capital investments, and expand capacity - including capacity from investment in new U.S. companies. Indeed, the domestic industry's operating margin in 2016 was [ ], and

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20 *See* Exhibit 4 for this calculation.

21 To avoid any ambiguity, the module minimum floor price is inclusive of the per watt tariffs. By way of example, in year one, if a module is imported with a base price of $0.42 per watt, a 201 tariff of $0.32 per watt will be added to that price. The resulting per watt value of the module thus becomes $0.74 – which meets the minimum floor price. Similarly, if the module price is $0.40 per watt, once the 201 tariff of $0.32 per watt is added to the price, the resulting per watt value of the module thus becomes $0.72 – which does not meet the minimum floor price.

22 Such a period would also allow the Commission the opportunity under section 204(a)(2) to conduct a mid-course review of the remedy and industry adjustments to international competition.

the U.S. industry [ ].[23] Relief should be sufficient to provide durable relief to the domestic industry that allows it to regain profitability, while incentivizing investment in domestic cell and capacity expansion. Therefore, four years of relief is appropriate because:

1. The domestic industry has been significantly weakened by successive waves of imports. On an operating basis, the domestic industry [ ] the POI and should, at a minimum, have four years to remediate the serious injury; and
2. Due to the nature of competition in this industry, a four-year period of relief is needed to incentivize additional domestic and foreign investment in U.S. cell and module capacity. This investment is much less likely to occur if the remedy is less than four years due to the time it takes to construct new U.S. facilities, and the limited payback period.

Suniva recognizes that Section 203(e)(5),[24] applicable to the Commission by virtue of section 202(e)(3),[25] requires that any remedy in excess of one year be phased down at regular intervals. The statute does not prescribe the amount of any such phase-down. The Commission has recognized that the nature and amount of the injury to be remedied are critical elements in deciding the amount of any phase-down. In this case, due to the severity of the injury to be remedied, the above-identified requested phase-downs should be small throughout the 4-year period.[26]

4. Conclusion On Per Watt Tariffs And Module Floor Price

As detailed above, Suniva requests separate per watt tariffs on CSPV cells and modules and a module floor price. Suniva also requested a per watt tariff on cells and a module price

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23 *See* Staff Report at C-4 (Table C-1a).

24 19 U.S.C. § 2253(e)(5).

25 19 U.S.C. § 2252(e)(3).

26 The items requested in Section II.B do not have time limitations or require phase-downs.

floor in the 201 petition.[27] However, Suniva recognizes that it has added a separate per watt tariff on modules and the numeric values for the cell tariff and module price floor have been reduced in this remedy request.[28] Indeed, in Suniva's 201 Petition, Suniva stated:

> Petitioner reserves the right to amend this petition and request such relief if circumstances warrant during the pendency of the ITC's investigation.[29]

With the benefit of the record in this investigation and the additional pricing data gathered, Suniva has amended its recommendations – to ensure that the requested remedy is no greater than that needed to constructively address the serious injury to the domestic industry and facilitate positive adjustment.

Finally, per discussions with Suniva's co-petitioner (SolarWorld), we understand that in lieu of a price floor, Solar World is advocating the use of a quota based on volume. Suniva has no objection to the use of a volume quota instead of a price floor as a remedy – provided that it is used in conjunction with the per watt tariffs on cells and modules. Put simply, a per watt tariff is insufficient to remedy the injury suffered by the domestic industry. Nor is a floor price or a quota alone sufficient. None of these remedies, alone, would suffice. The per watt tariffs must be combined with the floor price (or a quota). Indeed, the statutory language provides that the Commission is required to "recommend the action that would address the serious injury . . . to the domestic industry and be most effective in facilitating the efforts of the domestic industry to make a positive adjustment to import competition."[30] In other words, the Commission is required to recommend the most efficient remedy – a solution best matched to the cause of the

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27 Petition for Relief Pursuant to Sections 201-202 of the Trade Act of 1974 on Behalf of Suniva, Inc. Regarding Crystalline Silicon Photovoltaic Cells and Modules at 45-46 (Apr. 26, 2017) ("Suniva 201 Petition").

28 Specifically, in Suniva's 201 Petition, the company suggested a per-watt tariff of $0.40, and a module floor price of $0.78/watt.

29 Suniva 201 Petition at n 156.

30 19 U.S.C. § 2252(e)(1).

serious injury. Suniva respectfully submits that a combined remedy of tariffs and floor price (or quotas) is necessary to fulfill this statutory directive.[31] Here, the serious injury was caused by increases of low-priced imports of CSPV cells and panels,[32] forcing domestic prices, sales volumes, and profits to plummet. Foreign producers have also demonstrated their willingness to ship massive volumes of product to the United States, irrespective of price, and to absorb duties, as evident from the increase in imports of Chinese product (by 732.3 percent)[33] during the POI despite the imposition of antidumping and countervailing duty orders in 2012 and 2014. The remedy necessary to address these factors is the simultaneous imposition of a tariff and a floor price (or quota).

The proposed tariffs are necessary to increase the price of imports and provide price relief to U.S. manufacturers. While the tariffs by themselves would increase prices and volume sold by domestic producers, a tariff alone will not address the foreign producers' continued efforts to expand their capacity irrespective of demand and offload their massive excess supply in the U.S. market. To do so, foreign producers have been willing to drop their prices, leading to the large price declines and excessive inventories in the U.S. market in 2016, causing serious injury to U.S. producers. The only way to address this push into the U.S. market and ensure that the large volumes and deteriorating prices that prevailed in 2016 do not recur is to also impose a price floor (or quota) on imports. Both tariffs and a price floor (or quota) are also justified because many foreign producers will simply absorb some or all of a tariff and will continue to ship large volumes to the United States. The Commission has seen evidence of this in the prior antidumping and countervailing duty investigations against CSPV imports from China. In 2012

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31 The statute provides for the imposition of tariffs and quotas, among other specified remedies, and "any combination of actions . . . ." 19 U.S.C. §§ 2252(e)(3)(A), (e)(3)(C), (e)(3)(J).

32 Staff Report at C-3 (Table C-1a) [ ].

33 Staff Report at C-3 (Table C-1a).

and early 2015, the Commission and the U.S. Department of Commerce found that imports of CSPV products from China were subsidized and were being sold at less-than-fair-value in the United States.[34] The antidumping margin in the 2012 orders ranged from 18.32 percent to 249.96 percent,[35] while the countervailing duty margin ranged from 14.78 percent to 15.97 percent.[36] Similarly, the antidumping margin in the 2015 orders ranged from 26.71 percent to 165.04 percent and the countervailing duty margin ranged from 27.64 percent to 49.21 percent.[37] These substantial margins have not deterred low-priced Chinese imports from the U.S. market, however. In fact, the data collected by the Commission demonstrates that Chinese imports have increased 732.3 percent since 2012.[38] Moreover, producers have demonstrated that they can quickly and easily shift their production and supply chains to avoid duties, as evident from Chinese producers' shift to sourcing cells from Taiwan after the first AD/CVD investigation, and their subsequent shift to countries like Malaysia, Thailand, and Vietnam, after the second AD/CVD investigations.

B. Additional Remedy Requests

In addition, to the above remedy requests, Suniva respectfully requests that the Commission recommend the following to the President:

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[34] *See Crystalline Silicon Photovoltaic Cells, Whether or Not Assembled Into Modules, from the People's Republic of China*, 77 Fed. Reg. 73,017 (Dep't Commerce Dec. 7, 2012) (countervailing duty order); *Crystalline Silicon Photovoltaic Cells, Whether or Not Assembled Into Modules, from the People's Republic of China*, 77 Fed. Reg. 73,018 (Dep't Commerce Dec. 7, 2012) (am. final determ. and antidumping duty order); *Certain Crystalline Silicon Photovoltaic Products From the People's Republic of China*, 80 Fed. Reg. 8,592 (Dep't Commerce Feb. 18, 2018) (antidumping duty order; and am. final countervailing duty determ. and countervailing duty order).

[35] *Crystalline Silicon Photovoltaic Cells, Whether or Not Assembled Into Modules, from the People's Republic of China*, 77 Fed. Reg. 73,018 (Dep't Commerce Dec. 7, 2012) (am. final determ. and antidumping duty order).

[36] *Crystalline Silicon Photovoltaic Cells, Whether or Not Assembled Into Modules, from the People's Republic of China*, 77 Fed. Reg. 73,017 (Dep't Commerce Dec. 7, 2012) (countervailing duty order)

[37] *Certain Crystalline Silicon Photovoltaic Products From the People's Republic of China*, 80 Fed. Reg. 8,592 (Dep't Commerce Feb. 18, 2018) (antidumping duty order; and am. final countervailing duty determ. and countervailing duty order).

[38] Staff Report at C-3 (Table C-1a).

1. The Commission Should Recommend That The President Issue An Executive Order Directing All U.S. Government Agencies To Require The Use Of U.S. Origin Solar Cells (Whether Or Not Partially Or Fully Assembled Into Other Products)

Consistent with the Administration's focus on American manufacturing, Suniva asks the Commission to recommend that the President issue an Executive Order requiring that all U.S. government agencies procure American-made solar cells and panels for all U.S. government projects, and for all projects involving photovoltaic devices that will be used by a federal agency. Doing so will not only encourage U.S. production and the hiring of American workers, it will also address the increasing national security concerns with relying on foreign origin solar cells and panels in the United States.[39]

The procurements of photovoltaic devices by the Department of Defense ("DOD") are governed by section 858 of the Carl Levin and Howard P. 'Buck' McKeon National Defense Authorization Act for Fiscal Year 2015 ("NDAA").[40] Section 858 requires the Secretary of Defense to ensure that any "covered contract" include a provision requiring that "any photovoltaic device installed under the contract be manufactured in the United States substantially all from articles, materials, or supplies mined, produced, or manufactured in the United States substantially all from articles, materials, or supplies mined, produced, or manufactured in the United States," unless a determination is made that such a requirement is inconsistent with the public interest or involves unreasonable costs.[41] The definition of "covered contract," however, provides a significant loophole that has allowed foreign-origin product to be used in such projects:

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39 *See infra* Section III.B.2.

40 10 U.S.C. § 2534 note (Procurement of Photovoltaic Devices).

41 P. Law 113-291, Sec. 858 (Dec. 19, 2014).

> Covered contract means a contract awarded by the Department of Defense that provides for a photovoltaic device to be—(A) installed inside the United States on Department of Defense property or in a facility owned by the Department of Defense; or (B) *reserved for the exclusive use* of the Department of Defense in the United States for the full economic life of the device.[42]

This loophole has allowed the DOD to use non-U.S. origin product for projects from which the generated energy is used by the DOD as well as third parties. This is a significant gap that Suniva urges the Commission, and the President, to address. To do so, Suniva asks the Commission to recommend that the President issue an Executive Order instructing the DOD to define the phrase "exclusive use" to mean "a substantial majority." In other words, the U.S. origin photovoltaic device requirement will apply to any contract awarded by the DOD that involves the DOD's use of 51 percent or more of the power generated by the photoelectric device.

Alternatively, and consistent with the President's authority to "submit to Congress legislative proposals to facilitate the efforts of the domestic industry to make a positive adjustment to import competition…,"[43] Suniva asks the Commission to recommend the following legislative amendment to section 858 of the NDAA:[44]

> *Proposed Amendment*: Covered contract means a contract awarded by the Department of Defense that provides for a photovoltaic device to be—(A) installed inside the United States on Department of Defense property or in a facility owned by the Department of Defense; or (B) ~~reserved for the exclusive~~ used by the Department of Defense in the United States ~~for the full economic life of the device~~.

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42 10 U.S.C. § 2534 note (Procurement of Photovoltaic Devices) (emphasis added).

43 19 U.S.C. § 2253(a)(3)(H).

44 S.1519, the NDAA, as recently passed by the Senate, contains at section 863 of the bill, a sunset for provisions that support Buy America for solar use by the Department of Defense and should be vigorously opposed when the bill goes to conference.

Such an amendment would require U.S.-origin product for any contract involving photovoltaic devices that will be used by the Department of Defense, whether exclusively or in conjunction with third-party users.

Suniva was pleased to see that MJ Shiao and Shayle Kann, in their September 25, 2017, article *6 Ways to Encourage American Solar Manufacturing Without Import Duties*, agree with Suniva that changes to the Buy American Act can "increase energy independence and support domestic suppliers at the same time."[45]

2. The Commission Should Recommend That The President Issue An Executive Order Directing all U.S. Government Agencies To Require That Electricity Obtained Through Solar Power Purchase Agreements Be Generated Using U.S. Origin Solar Cells (Whether Or Not Partially Or Fully Assembled Into Other Products)

For the reasons described above, the Commission should also include in its remedy a recommendation that the President issue an Executive Order that extends the requirement to use U.S.-origin solar cells to circumstances in which U.S. government agencies purchase electrical power from third parties. The Executive Order should specify that solar-generated electricity can only be acquired through power purchase agreements if it is generated using U.S. origin cells.

3. The United States Should Conduct A Study Of Cyber, Electrical Grid And National Security Risks Of Non-U.S. Manufactured CSPV Cells And Modules

As set forth in great detail below in section III.B.2, a vibrant U.S. CSPV cell and module manufacturing industry is vital to U.S. national security interests. Indeed, in a press statement issued on September 22, 2017 (after release of the Commission's vote), the White House stated:

> The U.S. solar manufacturing sector contributes to our energy security and economic prosperity.[46]

45/ *See* Exhibit 6.

46 David Lowder and Nichola Groom, "*U.S. solar trade case advances, panel finds harm to producers*" Reuters (Sept. 22, 2017) https://www.reuters.com/article/us-usa-trade-solar/u-s-solar-trade-case-advances-panel-finds-harm-to-producers-idUSKCN1BX280.

Suniva could not agree more. As such, Suniva requests that a recommendation be made to the President that his administration conduct a study surrounding the cyber, electrical grid and national security risks of domestic use of non-U.S. manufactured CSPV cells and modules. Suniva suspects that this report will reveal serious vulnerabilities in grid security and reliability posed by foreign CSPV cells and modules.

4. The United States Should Initiate Bilateral And Multilateral Negotiations To Reduce Global Excess Capacity And Restore A Supply And Demand Balance In The Global Market

Suniva requests that the Commission recommend that the President initiate international negotiations between the United States and the exporting countries to address the underlying causes of the increase in imports and otherwise to alleviate the injury and threat of injury. This action is essential to the long-term viability of the domestic industry and to creating rational market conditions that will allow it to compete once safeguard relief ends.

5. Disbursements Of Funds

In its 201 Petition, Suniva set forth two remedies related to the collection and/or distribution of various funds, as follows:

> The second form of requested relief is the equitable distribution of antidumping and countervailing duties collected by, and still under suspension with, the U.S. government since the imposition of the antidumping/countervailing duty orders in CSPV AD/CVD 1 and CSPV AD/CVD 2. While petitioner does not have information on the total dollar amount of antidumping and countervailing duties still under suspension pursuant to these orders, this can be obtained by the Commission from CBP. The distributions requested by petitioner are:
>
> - 25 percent of the collected duties to be distributed on a pro rata basis to U.S. CSPV cell manufacturers (based on production capacity as of March 1, 2017);
> - 25 percent of the collected duties to be distributed on a pro rata basis to U.S. CSPV module manufacturers (based on production capacity as of March 1, 2017);

- 10 percent of the collected duties to be distributed to U.S. polysilicon producers, as well as crystal growing and wafer facilities on a pro rata basis (based on production capacity as of March 1, 2017); and
- 20 percent for the establishment of a fund, managed by the U.S. Department of Commerce, for the purposes of re-initiation of manufacturing capacity idled between March 1, 2013 and the date of imposition of any safeguard measures by existing U.S. CSPV cell and module manufacturers and U.S. polysilicon producers.

> The third form of relief requested is the creation of a separate economic investment development program funded with any duties collected under a safeguard action. This fund, managed by the U.S. Department of Commerce, will be made available to parties who use any of the distributed funds for the purpose of developing new or additional manufacturing capacity relating to the CSPV cell/module supply chain, including but not limited to, polysilicon production and wafer manufacturing.[47]

Suniva still believes that the United States should continue to seek an equitable resolution of the antidumping and countervailing duty funds that are under liquidation suspension due to U.S. Court of International Trade litigation. Similarly, Suniva believes that funds should be made available to those seeking the development of new or additional manufacturing capacity relating to the CSPV cell/module supply chain, including but not limited to, polysilicon production and wafer manufacturing. However, to be clear, while Suniva suggested in its petition that distributions to support the domestic industry could come from antidumping and countervailing duties and any tariff imposed as result of this safeguard action,[48] Suniva is not wedded to funds coming from these sources and recognizes the Commission may consider alternative sources of funds. Suniva is therefore open to the Commission recommending different sources of funds than those initially proposed by Suniva that would achieve the goal of supporting the domestic

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47 Suniva 201 Petition at 46-47.

48 Indeed, even Jigar Shah, president of Generate Capital, who has been very critical of this 201 action, and in fact testified against at the Commission's August 22, 2017, injury hearing, is quoted as suggesting "using DOE grants or the estimated $1.5 billion to $2 billion collected in 2015 tariff duties to fund manufacturing centers." http://www.utilitydive.com/news/solar-insiders-expect-itc-harm-finding-handing-tariff-decision-to-trump/505076/

industry, including the development of new or added CSPV manufacturing along the supply chain.[49]

III. JUSTIFICATIONS FOR THE PROPOSED REMEDIES

Below Suniva summarizes why its recommends its proposed remedies – including the fact that the projected effects of the proposed remedies on the domestic industry be beneficial to the industry itself.[50]

A. The Proposed Relief Is Needed To Remedy The Domestic Industry's Injury

As set forth below, the relief proposed by Suniva will permit the domestic CSPV cell and module industry to both stabilize and recover. Specifically, the proposed relief will increase capital spending to levels required to strengthen the competitiveness of, and restore health to, the domestic industry. These capital investments will need to generate positive rates of return. Indeed, as shown in the table below, the proposed remedy would allow domestic producers to increase cell production by 71 percent and module production by 61 percent. Sales quantities would increase by 84 percent and revenues would increase by 116 percent. With the remedy in place, operating margins would increase from [ ] percent of net sales in the base scenario to [ ] percent of net sales, an increase of 20.1 percentage points. On a per unit basis, the remedy

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49 Suniva was pleased to see that MJ Shiao and Shayle Kann, in their September 25, 2017, article *6 Ways to Encourage American Solar Manufacturing Without Import Duties*, agree with Suniva that the Administration should consider including the duties collected under the existing antidumping/countervailing duty orders on Chinese/Taiwanese product when figuring out how to encourage domestic manufacturing. *See* Exhibit 6. Indeed, they stated:

> If the Trump administration truly believes in the art of a (good) deal, it should take the duties collected from existing tariffs on Chinese and Taiwanese solar products and equitably redirect them toward new manufacturing investment. In other words, let's build a wall of solar manufacturing and get China to pay for it.

50 Indeed, Suniva is aware its co-petitioner SolarWorld includes in its prehearing remedy brief several other benefits of the proposed remedies, including the fact that the proposed remedies are projected to create thousands of solar jobs, and that the proposed remedies would have limited, if any, effect on demand and downstream consumers. Suniva wholeheartedly agrees.

would permit the domestic industry to earn [ ] in gross profits per watt and [ ] per watt in operating profits.

Table 1: Effects of the Proposed Remedy on Domestic CSPV Operations, 2016[51]

	Base Scenario	Remedy Scenario	Change	Percent Change
	Quantity (Kilowatts)			
Cell Production	[		]	71%
Module Production	[		]	61%
Net Sales Quantity	[		]	84%
	Value ($1,000s)			
Net Sales Value	[		]	116%
COGS	[		]	73%
Gross Profit	[		]	
SG&A	[		]	95%
Op. Income	[		]	
	Unit Value ($/KW)			
Net Sales AUV	[		]	18%
Unit COGS	[		]	-6%
Unit Gross Profit	[		]	
Unit SG&A	[		]	6%
Unit Op. Income	[		]	
	Percent of net sales			*Percentage Points*
Gross Margin	[		]	20.1%
COGS / Net Sales	[		]	-20.1%
Operating Margin	[		]	21.3%

Also, the tariff will promote foreign investment in domestic CSPV cell and module manufacturing, leading to larger increases in output and domestic employment over the adjustment period. Such investment is key to ensuring a viable U.S. solar industry, and one that

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[51] Results of an income statement model assessing the impact of price increase and 100 percent capacity utilization due to the tariff and quota. The model uses firm-specific production and financial data on cell and module operations in 2016. (Staff Report Tables III-4,7 and Appendix E.) The tariff allows domestic cell and module prices to increase to the new import AUV (2016 import AUV plus the tariff). Producers with cell capacity greater than module capacity sell their cells commercially in the United States. The model accounts for firm-specific fixed COGS and SG&A expenses, and module COGS increase in response to the increase in cell prices. Results reflect operations on CSPV products: the sum of commercial cell and module operations.

can successfully adjust to imports during the relief period. The proposed tariffs and remedy are needed to spur such investment. Absent this remedy, subsidized foreign producers will continue to supply the U.S. market from abroad and harm what remains left of the U.S. solar cell and module industry.

B. The Proposed Relief Will Prevent The Extinction of CSPV Cell and Module Manufacturing In The United States

As the Commission well knows, the two petitioners are basically all that is left of the CSPV cell and module manufacturing industry in the United States, and Suniva is in Chapter 11. It is not hyperbole, or even supposition, to note that, without a strong, effective, and enforceable remedy, Suniva and SolarWorld will go the way of almost 30 others before them.[52] Indeed, without a sufficient remedy, Suniva, which is already in Chapter 11 bankruptcy, will have a hard time emerging from bankruptcy. It would be the literal end of CSPV cell and module manufacturing in the United States.

We already know that Solar Energy Industries Association ("SEIA") and others opposed to this 201 action do not care if CSPV cells and modules are made in the United States. Time and again, they have said that the CSPV manufacturing segment, represented by petitioners, does not "warrant" saving. Thus, they have summarily concluded that a 201 remedy would basically do "more harm than good." Suniva could not disagree more.

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52 *See* Staff Report at Table III-3.

1. The ITC Is Not Tasked With Considering The Impact Of Relief On The Entire U.S. Economy, Including Customers

Most importantly for purposes of remedy, as the Commission knows, it is not tasked under the statute with considering the impact of relief on the entire U.S. economy, including customers - that is the job of the President.[53]

However, SEIA and others opposed to this 201 action have spent considerable time and money, since the very filing of this action, forecasting dire consequences to demand, employment for installers, and other negative consequences for downstream users should any remedies be placed on imports. However, for the following reasons, their forecasts on this in front of the Commission should not be viewed as credible:

- First, it is simply not true that 201 remedies will "destroy" demand or lead to a net loss of jobs. *See* Exhibit 7, which is an analysis of the impact on the entire U.S. solar sector of the increase in employment and economic activity that would occur if an effective remedy is imposed. As set forth in the attached, under Suniva's first-proposed set of remedies (which have been modified (reduced) herein), any slowing of demand which was already anticipated in the industry prior to the filing of this petition has been fully accounted for. However, as all the record evidence available to the Commission shows, even with the imposition of an effective remedy, solar demand and installations remain positive and total installed solar capacity continues to increase. Indeed, Hugh Bromley, described as the "lead U.S. solar analyst at Bloomberg New Energy Finance," in an article highly critical of this 201 action, is quoted as saying: "{e}ven with a tariff, the solar industry will grow and create jobs."[54] Similarly a report by FBR states: "In the worst-case scenario (tariff/minimum prices), we estimate utility-scale systems would essentially return to 2016 levels, trimming demand."[55] Thus, this is not an issue of growth vs. no growth, or job gains or actual job losses, it is about whether the United States will have a solar manufacturing industry at all, the rate of demand growth and the rate of overall job growth. Indeed, to claim that an increase in the cost of acquiring modules is going to kill demand is unfounded. For example:

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53 19 U.S.C. § 2252(c). Thus, the Commission is not directed to examine the impact that the proposed remedies will have on others – including producers of trackers, inverters, combiner boxed, racking & mounting systems, etc.

54 http://www.utilitydive.com/news/solar-insiders-expect-itc-harm-finding-handing-tariff-decision-to-trump/505076/

55 FBR – *Total Eclipse: Previewing Solar 201 Trade- Case Options*, September 5, 2017, provided at Exhibit 9.

- SolarWorld estimates that modules account for approximately 10-15% of total installation costs.[56]
- Deutsche Banks stated that for residential companies, "module costs are only about 12% of total installed costs and as such an potential tariff would have a minimal impact (~6-8%) on costs which could likely get offset by lower customer acquisition costs."[57]
- A September 20, 2017, Seeking Alpha Analysis on Canadian Solar by Dowgate Hill Capital, states that for developers, modules only represent 30-40% of total development cost. Thus, it concludes "Even in the very unlikely outcome of a hypothetical 100% price increase, this would translate into a mere 15% increase in total capex/w, before any savings obtainable on other balance of system costs, which have also been consistently declining."[58]

- Second, cell and module costs are but one part of a solar array. There are numerous other costs, such as soft costs (like install labor, land acquisition, sales tax, overhead, etc.), hardware costs (like structural and electrical components), inverter costs, etc. Indeed, at Exhibit 8, Suniva provides excerpts from a September 2017 report from the National Renewable Energy Laboratory (NREL, a national laboratory with the U.S. Department of Energy), entitled *U.S. Solar Photovoltaic System Cost Benchmark: Q1 2017*, which details the various costs that go into residential, commercial and utility-scale systems. Module costs are but one of many. This is likely why the Seeking Alpha article, in discussing Canadian Solar (CSIQ), states: "The stock prices of CSIQ and its peers seem already to reflect the worst possible case scenario. However, we believe the safeguard measures under Section 201 would be very unlikely to have the near apocalyptical consequences that many U.S. developers and foreign manufacturers have argued." Indeed, the NREL report shows that only a portion of the plummeting of prices that occurred in 2016 was passed on to the final consumer and therefore could have impacted demand. Instead the NREL report finds that a significant portion of the rapid decline in prices has been captured as profit by installers: "Also, the higher net profit in Q1 2017 - 7%, compared to 2% in Q1 2016-indicates that the rapid module price reduction in 2016 enabled EPC firms and developers to retain a higher profit and still maintain a competitive project costs."[59]

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56 *See* Juergen Stein "*The case for U.S. solar manufacturing*" PV Magazine (Aug. 31, 2017) at Exhibit 10.

57 *See* Vishal Shah and Rachel Lei, "*What does the ITC decision mean for solar sector?*" Deutsche Bank Markets Research (Sept. 22, 2017) at Exhibit 11.

58 https://seekingalpha.com/article/4108224-canadian-solar-rare-bargain-hiding-plain-sight.

59 *See* Exhibit 8 at 29, 37 and Table 12.

In short, the Commission has defined the U.S. industry as those producing CSPV cells and modules in the United States. The Commission unanimously found serious industry to those producers substantially due to imports. Thus, the Commission's focus under the statute is solely on how any remedy will assist those who produce cells and modules – and not on any impacts on others outside of manufacturers of CSPV cells and modules. The analysis provided by Suniva, which is corroborated by numerous third-parties and the NREL report, makes clear that the remedies requested by Suniva will enable it to return to profitability, grow the broader U.S. CSPV cell and module manufacturing sector, and take advantage of continued growth in U.S. demand.

2. A Vibrant U.S. CSPV Cell And Module Manufacturing Industry Is Vital To U.S. National Security Interests

Lost in SEIA's well-funded media barrage has been the negative impact that the death of the domestic CSPV cell and module manufacturing industry would have on the national security and energy security of the United States.

a. The United States Should Not Be 100 Percent Dependent On Foreign Production For Any Energy Source – Including Solar Electricity Generation

Suniva believes strongly that not being completely dependent on foreign imports for any energy source is important to the national and energy security of the United States. Indeed, as stated by Ronald Reagan when he was governor of California:

> The energy problem is a crisis now. But it can be an historic opportunity to free America forever on dependence on unstable foreign oil that can be turned off and on at will, by those who use world commerce for economic blackmail and coercion.[60]

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[60] Ronald Reagan, State of the State Address, January 9, 1974.

That is as true today as it was 43 years ago. Will the sun still shine if strong and effective remedies are not imposed? Yes. However, if strong and effective remedies are not imposed, none of the cells collecting and converting the sun's rays will be made in the United States. They will all be manufactured in foreign countries – primarily China and its surrogates. Once the U.S. cell and module manufacturing industry has been killed off completely, foreign powers will be able to turn off and on, at will, the supply of CSPV cells and modules. Those opposed to this 201 action fail to confront this fact. The fact remains, as stated by Matt Card of Suniva at the Commission's injury hearing on August 22, 2017:

> We all believe it is vital to American interests that this manufacturing industry survives. If, as a country, we lose this industry, then we lose much more than the jobs associated with manufacturing. We also lose the R&D leadership that allowed this technology to be birthed in the first place. As a country, we will have ceded manufacturing of what everyone agrees that's a meaningful source of electrical generation to China and its proxies in Southeast Asia and other global outposts. The implications of this are significant. As we continue to stress the needs of energy independence as a country, the U.S. in fact will have no control over its own destiny when it comes to power generation from the sun. How much or how little solar energy the United States produces and at what price will be completely in the hands of foreign governments.[61]

Everyone involved in this case believes deeply in solar power, and the bright future it holds for our country. However, to avoid complete dependence on other nations for this powerful form of renewable energy, the United States must actually manufacture a portion of the supply of this electricity. Indeed, on September 25, 2017, the Monday after the Commission's injury vote, an article by Howard Arey, owner of Texas installation firm Solar CenTex appeared in Solar Power World online. Mr. Arey made several interesting observations on the role that solar energy should have in ensuring energy security, including:

> Undoubtedly, this vote has shaken up the successes of the last several years, but I'd offer this is necessary for the industry to move to an important new level to be

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[61] Tr. at 96-97 (Card).

> part of any national dialogue regarding U.S. energy dominance. Solar must be part of this discussion, and if the best we have is, "We can't lose installer jobs in 2018," then we're not thinking strategically enough.
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> * * *
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> Security means domestic capability and competitiveness for the full ecosystem of solar from R&D all the way to net-metering policy and technology. Right up front in this cycle is manufacturing. Of course there must be a robust, healthy domestic manufacturing capability if we want to be deemed a necessary component of U.S. energy security and dominance. It is hard to be energy dominant if we're the global leaders in every aspect of solar… except this one little thing called "manufacturing." There is a reason why our military has cultivated a national industrial base to build our ships, aircraft and tanks. We cannot be dependent on other nations to build and sell us items that are essential to our national security. If we want solar to be deemed essential, we must care about where the modules are manufactured.
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> * * *
>
> Any analogy that solar modules are like other low-cost products we buy from China does not hold water if we look at this through the energy security lens. They're not sneakers and flat-screen televisions; we must stop talking like solar is a consumer-good and instead refer, think and advocate for positions that bring us directly into the energy security discussion.
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> * * *
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> First, we must acknowledge that a healthy and competitive domestic module manufacturing base is a critical component of the U.S. solar energy industry. That is how the dialogue opens, for only then can the Administration give an overt acknowledgement that solar and renewables are also essential to U.S. energy security. The recent Energy Department grid reliability study has already cracked the door open–let's leverage this.[62]

Suniva could not agree more.

b. If We Lose The CSPV Cell Manufacturing Industry, We Lose The Associated R&D

CSPV technology was first created in the United States some 60 years ago. Since that time, the United States has been at the forefront of emerging solar technologies. If U.S. CSPV

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62 https://www.solarpowerworldonline.com/2017/09/guest-column-time-think-bigger/ As noted in that article, Howard "Scot" Arey is the founder and owner of Solar CenTex, a Solar Power World Top 500 contractor in Texas. Prior to starting Solar CenTex, he was the chief of staff of Nexolon America, now Mission Solar.

cell manufacturing ceases in the United States, the associated research and development ("R&D") will eventually similarly cease, as R&D follows manufacturing. As a result, future CSPV technologies (and related spin-off technologies) will be developed off-shore. This has significant implications to the future of solar progress in the United States – including space exploration, travel and use, both civilian and military.

America leads the world in solar R&D and technology and cannot risk losing our position. Indeed, in a September 25, 2017, article in Greentech Media titled *6 Ways to Encourage American Solar Manufacturing Without Import Duties*, authors MJ Shiao and Shayle Kann note that one of the reasons that domestic solar manufacturing is important is:

> Quite simply, manufacturing drives technology innovation. The National Science Foundation estimates that two-thirds of U.S. research and development dollars are spent by manufacturers (over 80 percent of which are from their own funds).[63]

They continue to state:

> If we believe that solar is a key part of the future of electricity, that the U.S. should be a leader in the clean electricity future, and that technology innovation is key driver toward that realization, then we must increase investment in domestic manufacturing.[64]

Even more telling is that China deemed this technology so important that the government of China hacked petitioner SolarWorld back in 2014 – which led to the indictment of four Chinese nationals. Specifically, in May of 2014, the U.S. Department of Justice announced that a grand jury in the Western District of Pennsylvania indicted five Chinese military hackers for computer hacking, economic espionage and other offenses directed at SolarWorld (as well as five other

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63 *See* Exhibit 6.

64 *Id.*

American victims in the nuclear power and metals industries).[65] With respect to SolarWorld, the press release stated:

> In 2012, at about the same time the Commerce Department found that Chinese solar product manufacturers had "dumped" products into U.S. markets at prices below fair value, Wen and at least one other, unidentified co-conspirator stole thousands of files including information about SolarWorld's cash flow, manufacturing metrics, production line information, costs, and privileged attorney-client communications relating to ongoing trade litigation, among other things. Such information would have enabled a Chinese competitor to target SolarWorld's business operations aggressively from a variety of angles.[66]

The Chinese government understands the importance of this product – so should the United States government – and the way to do that is to provide robust 201 remedies that allow the domestic industry to stabilize and grow.

c. We Need To Manufacture CSPV Cells And Modules In The United States To Ensure Grid Reliability

Increasingly, the issue of grid security has taken on more importance, and is getting more attention from federal officials. Indeed, the Department of Energy has recently announced that it is changing the focus of its "SunShot Initiative" to grid resilience, reliability and storage. Indeed, in a September 12, 2017 release, Daniel Simmons, Acting Assistant Secretary for Energy Efficiency and Renewable Energy stated:

> As we look to the future, DOE will focus new solar R&D on the Secretary's priorities, which include strengthening the reliability and resilience of the electric grid while integrating solar energy.[67]

It would be difficult, if not impossible, to claim that our solar energy production ensures grid security when the item that actually generates the solar power is produced solely in foreign countries. Indeed, the lead story in the August 2017 edition of Photon, was entitled: *Blackout –*

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65 At Exhibit 12 is copy of the U.S. Department of Justice's press release on the indictment. A full copy of the indictment is at https://www.justice.gov/iso/opa/resources/5122014519132358461949.pdf.

66 *Id.*

67 *See* Exhibit 13.

Might hackers exploit inverter software vulnerabilities to bring down the power grid? The concern is that hackers might be able to launch attacks on solar arrays, and the broader electrical grid that they connect to, through inverters.[68]

d. Conclusion On National Security Issues

As set forth above, those opposed to remedies in this investigation are effectively conceding the future of solar development in the United States to foreign countries – primarily China. It is shocking to Suniva that so many in the United States, including elected officials at the local and federal levels, are willing to concede yet another domestic manufacturing industry to China. Some are opposed to remedies because they are making significant profits that are predicated on the cheapest CSPV products possible. That profit motive is at least understandable. What is not understandable are the others who either do not recognize, or do not care, about the long-term viability of solar technology and energy production in the United States. We cannot just install CSPV cells and modules made elsewhere. We need to make them here too. To do that, the domestic CSPV cell and module manufacturers industry needs strong, effective and robust remedies.

C. The Proposed Relief Will Stimulate The Expansion Of The Domestic Industry

Fundamental to Suniva's goals of this 201 action was to create the opportunity and incentive for CSPV cell and module manufacturing to occur in the United States – not only for Suniva, but for other manufacturers as well. Stated another way, key to Suniva's adjustment goals are:

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[68] Excerpts, "*Blackout, Might hackers exploit inverter software vulnerabilities to bring down the power grid?*" Photon International, (August 2017) at Exhibit 14.

- For its production to be re-started and to expand; **and**
- For other producers to expand their capacity or create new capacity here in the United States.

For the domestic CSPV cell and module manufacturing industry to be profitable and sustainable, it is absolutely imperative that additional capacity come on-line. Only with the economies of scale that additional GigaWatt ("GW") production capacity brings can the domestic CSPV cell and module manufacturing industry thrive. At a macro-economic level, achieving critical mass, via additional investment in new manufacturing capacity beyond that of the petitioners, is vital to the on-going survivability of the U.S. industry in a post-safeguard U.S. market. CSPV cell and module manufacturing, even with the presence of a healthy U.S. industry, will continue to have a strong global footprint. Should the U.S. industry only develop to marginal levels (for example: only the co-petitioners redeploy significant manufacturing assets, and no additional development takes place) then upon expiration of the safeguard period, foreign manufacturers will every incentive to replicate previous actions that required the safeguards in the first place. It is critical that during the safeguard period that not only do the petitioners resume operations and capacity growth, but others (either through existing U.S. manufacturers growing, or new entrants) emerge in the U.S. market. U.S. CSPV cell and module manufacturing only survives post-safeguard, with critical mass that represents a meaningful market share of U.S. demand. This may be best achieved via a combination of domestic and foreign investment into new manufacturing capacity (which is absolutely incented by a strong remedy). Such new capacity will have additional growth impact on the "upstream supply chain" that feeds cell and module manufacturing, creating favorable supply chain economics to support manufacturing post-safeguard. At critical mass, it becomes economical for other supply chain providers (such as petitioner witness SKC,

Inc., or Ulbrich Solar Technologies manufacturing plant and Panasonic's silicon ingot growing plant, which announced its closure after the initiation of this safeguards case, citing market conditions) to initiate operations, since there would be an economically viable collection of customers domestically. The growth of U.S. cell and module manufacturing capacity is the first step to growing a broader, and survivable, supply chain.

This said, Suniva believes that other manufacturers are poised to invest in additional capacity here in the United States. Indeed, on September 20, 2017, Greentech Media published an article entitled: *Foreign Solar Manufacturers Weigh Opening US Facilities as Tariff Decision Looms*.[69] That article notes that several foreign manufacturers are seriously considering opening manufacturing operations in the United States, including BYD and Adani Solar.[70] As stated in that article by Gagan Pal, chief marketing officer of India-based Adani Solar:

> If {new tariffs} come into effect, I think the clear direction that will emerge from this is that manufacturing in the U.S. will be incentivized, or supported by direct or indirect means.

A read of the full article demonstrates that numerous international CSPV cell and module manufacturers are thinking about opening U.S. manufacturing facilities – and Suniva really hopes they do. However, what is also exceedingly clear from the Greentech Media article is that these manufacturers are waiting to see what sort of remedies, and the length of those remedies, before making any U.S. investment decisions. For example, the Greentech Media article states:

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[69] *See* Exhibit 5, Julia Pyper and Julian Spector, "*Foreign Solar Manufacturers Weigh Opening US Facilities as Tariff Decision Looms*" Greentech Media (Sept. 20, 2017).

[70] In addition, [
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> Still, Pal said his company is waiting for the final outcome of the ITC case to see if a U.S. factory would make commercial sense.[71]

Similarly, John Dallapiazza, senior sales manager for the Rocky Mountain Region at Trina Solar is quoted as saying:

> We're preparing for the contingencies and we will react, but you can't take the first step because you don't know what the tariff is going to be.[72]

This is of great concern to Suniva. Specifically, Suniva is concerned that if the remedies are not strong enough or long enough, the foreign companies will simply "wait it out" for the remedies to expire. That is, they will absorb any additional tariffs, continue to sell at a loss, and simply wait for the remedies to expire before rushing back into the U.S. market. Indeed, Tom Zhao, managing director for global sales of BYD stated: "The industry might be able to absorb a small tariff without huge disruption…"[73] Similarly, MJ Shiao (GTM Research solar analyst) apparently explained that the "5D calculus" that foreign producers will have to go through will be to consider the following variables:

> the type of remedy (i.e. tariff, quota, etc.), the geographic scope (e.g., will free trade agreement countries be exempt?), the severity of the remedy (e.g., how high will a tariff be?), the length of the remedy (e.g., how many years?) and what other suppliers might do.[74]

MJ Shiao continued later in the article:

> It's difficult to imagine that any supplier makes the plunge {in the U.S. market} until there's a clear recommendation from the ITC and even more importantly, clear guidance from the Trump administration on what it wants.[75]

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71 *See* Exhibit 5 at 3.

72 *Id.*

73 *Id.* at 4.

74 *Id.* at 6.

75 *Id.* at 8.

In short, it's abundantly clear that the remedies proposed by the Commission must be strong, multifaceted, and for the maximum period of time. Otherwise, the foreign manufacturers will simply "wait the tariffs out."

IV. LEGAL BASIS FOR THE REQUESTED REMEDIES

A. Per KW Tariff

1. Per KW vs. *Ad Valorem*

As noted above in Section III, Suniva is requesting separate tariff s be placed on CSPV cells and modules. Tariffs are specifically allowed under 19 U.S.C. § 2252(e)(2). In addition, Suniva requests that the tariffs be applied on a per watt basis (*i.e.*, a specific tariff, rather than an *ad valorem* tariff). There is precedent in U.S. trade actions for tariffs to be applied on a basis other than an *ad valorem*. For example, on several occasions the U.S. Department of Commerce ("Commerce") has applied antidumping tariffs on a per kilogram basis (rather than an *ad valorem* basis).[76] In cases where Commerce has done this, there has been a concern that foreign shippers are reducing their U.S. sales price to minimize the antidumping duty impact on their product.[77] Obviously, this is a form of duty evasion, and thus Commerce addresses it by stating the duty on a per-kilogram basis instead of an *ad valorem* basis.[78] Suniva firmly believes that if 201 tariffs were stated on an *ad valorem* basis, the United States would see a dramatic additional drop in CSPV cell and module entered values – as foreign shippers would reduce their prices to try and offset the 201 duties. *See* Exhibit 3 (Affidavit of Matt Card). Obviously, this would have the exact opposite impact that the tariffs are intended to have. In addition to Commerce

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[76] *See, e.g., Certain Frozen Fish Fillets from the Socialist Republic of Vietnam*, 72 Fed. Reg. 13242, Issues & Dec. Memo at Cmt. 6 (Dept. Commerce Mar. 21, 2007) (final admin. review) ("*Fish Fillets from Vietnam*"); *Honey from the People's Republic of China*, 70 Fed. Reg. 38873, Issues & Dec. Memo at Cmt. 7 (Dept. Commerce July 6, 2005) (final admin. review); *Fresh Garlic from the People's Republic of China*, 70 Fed. Reg. 34082 (Dept. Commerce June 13, 2005) (final admin. review).

[77] *Fish Fillets from Vietnam*, Issues & Dec. Memo at Cmt. 6.

[78] *Id.*

utilizing non- *ad valorem* tariffs, the 201 statute also contemplates (and thus approves) non-*ad valorem* tariffs. Specifically, 19 U.S.C. § 2252(e)(2)(A) authorizes the Commission to recommend "an increase in, or the imposition of, any duty on the imported article" (emphasis added). Note that it does not specifically state that the duty must be stated or assessed on an *ad valorem* basis. Indeed, the term "duty" is broadly defined in section 601(1) of the Trade Act as including "the rate and form of any import duty, including but not limited to tariff-rate quotas." Likewise, Commission staff have recognized that 201 tariffs can indeed be stated in forms other than *ad valorem*. In a July 3, 1984 memorandum from the General Counsel of the Commission entitled Remedy Recommendations in Section 201 Cases (attached hereto as Exhibit 15), it is stated:

> The tariff could be in the form of an ad valorem rate (e.g., 10 percent ad valorem), a specific rate (e.g., 5 cents per pound), or a compound rate (e.g., 5 cents per pound plus 10 percent ad valorem). Most U.S. duty rates are expressed in ad valorem terms. Many specific rates have been converted to ad valorem rates in recent years because high levels of inflation were reducing their effectiveness. Specific rates traditionally were used for commodity-type products which tended to fluctuate in price. They tended to provide more protection when prices were low (e.g., due to excess world supply) and less when prices were high (e.g., due to shortages) and less protection was needed.

Finally, when discussing the 50 percentage point limit of section 203(d)(1), this same memo recognizes that tariffs can be in any form (they simply need to be converted to an *ad valorem* equivalent for purposes of section 203(d)(1) (citing to sections 601(3) and (4) of the Trade Act)).[79]

2. Conversion Of Per Watt To An *Ad Valorem* Rate

Again, Suniva is requesting a per watt tariff of $0.25/watt on CSPV cells and $0.32/watt on CSPV modules. Suniva understands that it is required to convert these per-watt tariffs into *ad*

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[79] *See* Exhibit 15 at 9-10.

valorem equivalents, to ensure that it does not exceed the 50 percentage point limit of section 203(d)(1). Indeed as set forth in the Commission memo at Exhibit 15:

> The 50 percentage point limit of section 203(d)(1) applies to all forms of tariffs. Any specific or compound rate considered would have to be converted to an ad valorem equivalent to insure that it does not exceed 50 percent. Special procedures and definitions for such conversions are set forth in section 601(3) and (4) of the Trade Act. [80]

601(3) and (4) state:

> (3) The term "ad valorem" includes ad valorem equivalent. Whenever any limitation on the amount by which or to which any rate of duty may be decreased or increased pursuant to a trade agreement is expressed in terms of an ad valorem percentage, the ad valorem amount taken into account for purposes of such limitation shall be determined by the President on the basis of the value of imports of the articles concerned during the most recent representative period.
>
> (4) The term "ad valorem equivalent" means the ad valorem equivalent of a specific rate or, in the case of a combination of rates including a specific rate, the sum of the ad valorem equivalent of the specific rate and of the ad valorem rate. The ad valorem equivalent shall be determined by the President on the basis of the value of imports of the article concerned during the most recent representative period. In determining the value of imports, the President shall utilize, to the maximum extent practicable, the standards of valuation contained in section 1401a or 1402 {1} of this title (as in effect before the effective date of the amendments made by title II of the Trade Agreements Act of 1979) or in section 1401a of this title (as in effect on the effective date of such title II amendments) whichever is applicable to the article concerned during such representative period.

Thus, as set forth above in Section II.A.1, Suniva has ensured that the "*ad valorem* equivalent" of its per-watt tariff recommendations does not exceed the 50% limitation.

B. Price Floor

As noted above in Section III, Suniva is requesting a price floor be placed on CSPV modules. In furtherance of the Commission's clear obligation under the law to "recommend the action that would address the serious injury…to the domestic industry," the Commission is authorized to recommend a variety of import restrictions, including in combination with one

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[80] *Id.* at 9.

another. In particular, the Commission may recommend an import price floor pursuant to 19 U.S.C. § 2252(e)(2)(C), which states, "{t}he Commission is authorized to recommend under Paragraph (1) … (C) a modification or imposition of any quantitative restriction on the important of the article into the United States." The Commission is also permitted to do so by 19 U.S.C. § 2252(e)(4)(B), which states: "{i}n addition to the recommendation made under paragraph (1), the Commission may also recommend that the President…(B) implement *any other action authorized under law* that is likely to facilitate positive adjustment to import competition" (emphasis added). Thus, the Commission's discretion to make recommendations for actions is uniquely broad, reaching to the fullest extent of the President's constitutional and statutory powers.

A price floor is a type of quantitative restriction (*i.e.*, a quota) on the importation of the article into the United States. That is, the quota for articles below the floor price is zero, and above that price, there is no quota – the articles are effectively exempted, and thus imports can be unlimited.

Pursuant to 19 U.S.C. § 2252(e)(3), the quotas that the Commission may recommend are subject to the limitations on the President's actions set forth in 19 U.S.C. § 2253(e)(4), which states:

> Any action taken under this section proclaiming a quantitative restriction shall permit the importation of a quantity or value of the article which is not less than the average quantity or value of the article entered into the United States in the most recent 3 years that are representative of imports of such article and for which data are available, unless the President finds that the importation of a different quantity or value is clearly justified in order to prevent or remedy the serious injury.

Suniva's proposed minimum floor price of $.074 per watt, cascading downward each year, meets this test. That is, the most recent three years that are "representative" of imports of such article

and for which data are available are 2013 – 2015. The import module price during this three year period was [ ], therefore, the floor price is [ ]. Suniva's proposed price floor imposes a quota that would not impact imports priced at levels consistent with those in 2015, a year in which the application of antidumping and countervailing duty orders resulted in some rational pricing in the U.S. market and before the surge of low-priced imports occurred.

Similar to this proposal, the Commission has previously recommended a quota based on price points. In a 1978 201 case regarding clothespins,[81] the Commission recommended that spring clothespins under $2.20 per gross be subject to a quota, with that overall quota divided into three separate quotas based on prices as well. Clothespins above that price were exempt, and the articles were already subject to a general tariff. Likewise, the Commission has recommended a tariff rate quota that would not apply above a certain price point, *i.e.*, articles of the product above that price were not subject to the proposed tariff rate quota. Specifically, in a 1977 case regarding footwear, the Commission recommended that athletic footwear valued at over $8 per pair be exempted. Thus, the Commission's powers to recommend remedies includes differentiating between articles based on price, and the Commission has done so specifically with respect to a quota.

Finally, 19 U.S.C. § 2252(e)(4)(B) also permits the Commission to recommend that the President implement any other action authorized under law that is likely to facilitate positive adjustment to import competition. As noted, this gives the President broad and sweeping authority to take action to remedy the serious injury. The President has authority to regulate imports from a variety of sources under law. These include, but are not limited to, the

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[81] *Clothespins*, Report to the President, USITC Pub. 933, Inv. No. TA-201-36 (Dec. 1978).

International Emergency Economic Powers Act ("IEEPA") (50 U.S.C. §§1701-1706), which grants the President authority to regulate a comprehensive range of financial and commercial transactions in which foreign parties are involved in order "to deal with an unusual and extraordinary threat, which has its source in whole or in part outside of the United States, to the national security, foreign policy, or economy of the United States, if the President declares a national emergency…with respect to such threat." Under IEEPA the President may "by means of instructions, licenses, or otherwise…investigate, regulate, prevent or prohibit" virtually any foreign economic transaction, from import or export of goods and currency, to transfer of exchange or credit. IEEPA, and its predecessor statute, the Trading with the Enemies Act ("TWEA"), are typically used to impose financial sanctions. However, they have also been used to regulate the cross-border trade of goods, such as national security based export controls, and, in the case of TWEA, as the court-reviewed legal justification for President Nixon's 1971 import tariff surcharge of 10 percent.

Likewise, section 232 of the Trade Expansion Act of 1962 (19 U.S.C. § 1862) authorizes the President to impose restrictions on imports which threaten to impair the national security. If the Commerce Secretary finds the article "is being imported…in such quantities or under such circumstances as to threaten to impair the national security," he must so advise the President, and the President then decides whether to take action for such time as he or she deems necessary to "adjust" the imports of the article and its derivatives so imports will not threaten to impair the national security.

Also, Sections 301 – 310 of the Trade Act of 1974 (19 U.S.C. §§ 2411 – 2420) provides the authority to respond to unfair foreign practices. If the U.S. Trade Representative ("USTR") determines that a foreign act, policy, or practice is unreasonable or discriminatory and burdens or

restricts U.S. commerce, then the USTR is authorized to, among other things, (1) suspend, withdraw, or prevent the application of benefits of trade agreement concessions to carry out a trade agreement with the foreign country involved; (2) impose duties or other import restrictions on the goods of, and notwithstanding any other provision of law, fees or restrictions on the services of, the foreign country for such time as the USTR deems appropriate, or take all other appropriate and feasible action within the power of the President that the President may direct the USTR to take.

These are some examples of additional authorities within the President's powers that are authorized by law, and provide additional legal authority for the President to impose a price floor on imports after application of the tariff.

C. Additional Remedy Requests

As set forth above in Section II.B.1-5, Suniva requests that several additional remedies be recommended to the President. As explained above, the Commission is obligated under the law to "recommend the action that would address the serious injury…to the domestic industry and be most effective in facilitating the efforts of the domestic industry to make positive adjustment to import competition."[82] The Commission may recommend the following forms of remedy: a tariff duty increase, a tariff-rate quota, modification or imposition of quantitative restrictions, appropriate adjustment measures (including trade adjustment assistance), or any combination of the foregoing.[83] In addition, the Commission may recommend that the President initiate international negotiations to address the underlying cause of the increase in imports under 19 U.S.C. § 2252(e)(4)(A), or that the President implement any *other action authorized under law* that is likely to facilitate positive adjustment to import competition under 19 U.S.C. § 2252(e)(4)

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82 19 U.S.C. § 2252(e).

83 19 U.S.C. § 2252(e)(2)(A) – (E).

(B).[84] In turn, the law authorizes the President to take a broad range of actions to address the serious injury found by the Commission.[85] Each of the additional remedies requested by Suniva fall within the Commission's and President's authority.

With respect to recommending amending the Buy American Act rules (Section II.B.1, above) and issuing an Executive Order for U.S. government solar power purchase agreements (Section II.B.2, above), 19 U.S.C. § 2252(e)(4)(B) provides the basis for the Commission to make these recommendations to the President. Such recommendations are also consistent with the President's authority to "take any other action which may be taken by the President under the authority of law and which the President considers appropriate and feasible for purposes of" facilitating the domestic industry's positive adjustment to import competition.[86] It also is consistent with the President's authority to submit legislative proposals to Congress pursuant to 19 U.S.C. § 2253(a)(3)(H).

With respect to the United States government conducting a study of cyber, electrical grid and national security risks of non-U.S. manufactured CSPV cells and modules (Section II.B.3, above), the Commission is authorized to recommend this study pursuant to 19 U.S.C. § 2252(e)(4)(B). Such a recommendation is also consistent with the President's ability to "take any other action which may be taken by the President under the authority of law and which the President considers appropriate and feasible" pursuant to 19 U.S.C. § 2253(a)(3)(I).[87]

With respect to the United States initiating bilateral and multilateral negotiations to reduce global excess capacity and restore a supply and demand balance in the global market

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84 19 U.S.C. § 2252(e)(4)(A) and (B).

85 19 U.S.C. § 2253(a)(3).

86 19 U.S.C. § 2253(a)(3)(I), (a)(1)(A).

87 19 U.S.C. § 2253(a)(3)(I).

(Section II.B.4, above), the Commission is permitted to recommend such negotiations pursuant to 19 U.S.C. § 2252(e)(4)(A). This is in line with the President's authority under the statute to "initiate international negotiations to address the underlying cause of the increase in imports or otherwise alleviate the injury or threat thereof."[88]

With respect to disbursements (Section II.B.5, above), the Commission is authorized to recommend the requested disbursements pursuant to 19 U.S.C. § 2252(e)(4)(B). Such a recommendation is also consistent with the President's ability to "take any other action which may be taken by the President under the authority of law and which the President considers appropriate and feasible for purposes" of facilitating the domestic industry's positive adjustment to import competition.[89] As noted above in discussing the legal basis for a price floor, the President has authority to regulate imports from a variety of sources under law including under IIEPA, section 232 of the Trade Expansion Act of 1962, and sections 301 – 310 of the Trade Act of 1974. Specifically, with respect to disbursements from the antidumping and countervailing duty funds that are under liquidation suspension due to U.S. Court of International Trade litigation, the President, through the USTR, has the authority to settle litigation and reach an agreement in connection with the collection and distribution of duties that have been suspended.[90]

V. FREE TRADE AGREEMENT COUNTRIES

The President, not the Commission, will make the final decision concerning whether to provide relief to the U.S. industry and the kind of relief to provide - including with respect to imports from countries with which the United States has a free trade agreement ("FTA").

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88 19 U.S.C. § 2253(a)(3)(G).

89 19 U.S.C. § 2253(a)(3)(I).

90 *See Almond Bros. Lumber Co. v. United States*, 721 F.3d 1320 (Fed. Cir. July 1, 2013).

However, in formulating its recommendation to the President, the Commission should ensure that treatment of FTA countries does not become a tool that other countries can use to circumvent the remedy imposed in this safeguard action. If loopholes are left that non-FTA countries can exploit to evade the remedy, the effectiveness of the remedy will be undermined and it will not achieve its objective of eliminating the injury to the domestic industry. Indeed, foreign producers are clearly on the "look out" for any loopholes that may occur in the imposition and implementation of remedies. By way of example, in a Greentech Media article, there are several references to companies waiting to see what happens with FTA countries in deciding how to react. Consider:

> The status of free trade partners in the tariffs would dictate other choices. If NAFTA partners escape a tariff, solar producers could flock to Mexico for cheaper labor, easy access to the eastern and western U.S. and proximity to the growing Latin American market.[91]

While Mexico was found to have seriously injured the domestic CSPV cell and module industry, other FTA countries were not – which raises the very real concern that those excluded countries will become vehicles for shipping the product to the United States.

A. Canada

At its vote on September 22, the Commission found that imports of Canadian CSPV cells (whether or not partially or fully assembled into other products) did not account for a substantial share of total imports and contribute importantly to the serious injury caused by imports. This is not particularly surprising, as there currently is no CSPV cell production in Canada.[92] Indeed, whether or not a CSPV cell or module is covered by this 201 action is determined by the country

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[91] *See* Exhibit 5. *See also*, Exhibit 16 at 7 which is a September 25, 2017 article from Axios which suggests the possibility of using FTA countries as an "alternative strategy" and Exhibit 17 which is a September 25, 2017 Roth Capital Partners industry note that queries whether Canada can be used as a conduit to ship product to the United States (*e.g.* by sending third-country CSPV cells to Canada, assembling them into modules, and then shipping the modules to the United States free of 201 remedies.

[92] Staff Report at IV-19.

of origin of the CSPV cell (either alone or assembled into a module). Thus, since there is no current CSPV cell manufacturing in Canada – all CSPV modules coming into the United States from Canada are covered by this 201 action (except if the CSPV cell happened to be manufactured in one of the other excluded FTA countries, which Suniva does not believe is happening).[93] In any event, in developing its recommended remedy, the Commission should ensure that this finding with respect to Canada does not facilitate circumvention of the safeguard by taking the actions requested below.

As noted in the Staff Report for this investigation, Canadian Solar is one of the six largest Chinese companies producing CSPV cells and modules in China.[94] Again, there currently is no CSPV cell production in Canada.[95] As there currently are no Canadian-produced CSPV cells, any modules assembled in Canada will be subject to the remedy (because the CSPV cells in those modules will necessarily be non-Canadian).[96] Indeed, Canadian Solar sources its CSPV cells from [ ], where its production capacity [ ] between January 2012 and December 2016, from [ ]. This [ ] cell production ***must not*** be allowed to enter the United States without being subject to the remedy simply because it is assembled into modules in Canada. During the POI, [ ] percent of Canadian Solar's total module shipments went to the United States, all of which used [

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93 Put simply, it is simply not relevant to application of the 201 remedies whether a module happens to be "NAFTA originating." The rule of origin for this 201 case is set by this 201 case, and pursuant to this 201 action, country of origin is determined by the origin of the CSPV cell. By way of analogy, even if it is true that a CSPV cell could be sent from China to Canada, assembled into a module and Canada, and be deemed "NAFTA originating" – it would still be covered by the exiting AD/CVD orders against China. The same is true with respect to this 201 action.

94 Staff Report at IV-39.

95 Staff Report at IV-19.

96 This also assumes that the CSPV cells are not from another FTA-excluded country.

] cells.[97] This number would be expected to skyrocket if Canada is left as one of the only avenues for foreign-origin cells to evade the remedy. To prevent Canada from becoming a gateway for Chinese or other origin CSPV cells to circumvent the remedy imposed pursuant to this investigation, it is critical that the remedy applies to *any* cells that are not produced in Canada, the United States, or another excluded FTA, regardless of the form (cell or module) in which they are imported in the United States.

Indeed the Commission's Staff Report clearly shows the importance of Canada as a platform for Chinese producers and the lengths to which Chinese producers will got to circumvent or avoid trade restrictions. [

].[98] Commerce correctly recognized the potential for circumvention via module assembly and in the *CSPV 1* investigations imposed antidumping and countervailing duties based on the origin of the CSPV cells.[99] [

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In addition, the Commission should send a strong signal to the President that vigilance will be required to prevent other forms of circumvention of this safeguard. In particular, the ITC should note the need to monitoring developments closely, particularly with respect to the emergence of cell production in Canada. 19 U.S.C. §2254(b)(2) states that "the President is authorized to take such additional action under section 203 as may be necessary to eliminate any

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97 Staff Report at IV-38 (Table IV-16).

98 Staff Report at IV-42 (Table IV-18).

99 Staff Report at II-12, n. 4. Absent this outcome in *CSPV 1* module production capacity in Canada would likely have grown at an even greater rate that shown above.

circumvention of any action previously taken under such action." The ITC should recommend that the President mandate an anti-circumvention monitoring and compliance mechanism and make it clear that further action will be taken if foreign companies shift cell production into Canada to evade the remedy imposed in this safeguard action.

B. Other FTA Countries

With respect to the other countries with which the United States has FTAs, the Commission found that only imports of CSPV cells (whether or not partially or fully assembled into other products) from Mexico and Korea account for a substantial share of total imports and contribute importantly to the serious injury caused by imports. Similar to that of Canada, the Commission should develop its remedy recommendations to ensure that FTA partners are not used as export platforms to circumvent the remedy. Specifically, for the same reasons as laid out with respect to Canada above, the Commission should make clear in its recommendations to the President that the remedy will be imposed on CSPV cells that are not produced in an FTA partner, even when they are assembled into modules in the territory of an FTA partner. The Commission should also recommend that the President establish a monitoring and compliance mechanism to ensure that foreign cell producers are not shifting cell production to FTA partners to evade the remedy in this safeguard action. As noted above in the discussion on Canada,

[

].[100] [

]

].[101]

Singapore will require particularly close scrutiny, as it currently has CSPV cell production. While Singapore was not found to account for a substantial share of imports, imports of CSPV products containing cells produced in Singapore grew throughout the period of investigation by [ ] percent, from [ ] kW in 2012 to [ ] kW in 2016.[102] Not surprisingly, rapid growth in CSPV exports from Singapore to the United States [

] The Commission should recommend that the President closely monitor imports of CSPV products from Singapore and address any future surge in imports that may undermine the effectiveness of the relief provided in this safeguard action.

VI. CONCLUSION

The domestic CSPV cell and module industry is seriously injured from increased imports, and needs temporary relief. To remedy this injury, and get the industry "back on its feet," the Commission is requested to recommend the above-detailed remedies (as summarized in Exhibit 1), which include a per-watt tariff on cells and modules, a floor price on modules (or in the alternative a volume quota), as well as other actions. In addition, measures must be taken to ensure that circumvention of the relief is not accomplished through Canada, or other FTA countries not included in the Commission's injury finding on September 22.

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100 Staff Report at Table IV-18.

101 Staff Report at Table IV-17.

102 Staff Report at II-27 (Table II-7).

A return of non-distorted pricing is needed, which will create an incentive for new solar manufacturing operations in the United States. Suniva is committed to helping the domestic industry stabilize and then grow, which will create American jobs and ensure that this important manufacturing industry and energy source thrives.

Respectfully Submitted,

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Tim Keeler
Margaret Sales
Warren Payne,
Sr. Tax and Trade Policy Advisor
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MAYER BROWN LLP
On behalf of Suniva, Inc.

TABLE OF EXHIBITS

NO.	DESCRIPTION	BPI/ PUBLIC
1	Summary of Remedy Recommendations	Public
2A	Solar Energy Industries Association, *Solar Market Insight Report (Q4 2016)*	BPI
2B	Solar Energy Industries Association, *Solar Market Insight Report (Q2 2017)*	BPI
2C	Solar Energy Industries Association, *Solar Market Insight Report (Q4 2015)*	Public
2D	System Prices Under the Proposed Tariff	BPI
2E	*See* Joe Ryan and Chris Martin, *Solar Developers Hoard Panels as U.S. Tariff Threat Looms*, Bloomberg (Sept. 11, 2017)	Public
2F	Frank Andorka, *On this episode of solar hoarders: Developers gobble panels before possible price hike*, pv magazine (Sept. 14, 2017)	Public
2G	Nichola Groom, *Prospect of Trump tariff casts pall over U.S. solar industry*, Reuters (July 25, 2017)	Public
2H	GTM Research, *PV Pulse (July 2017)*, tabs 2A {c} and 2D {b}	BPI
3	Matt Card Affidavit	BPI
4	Calculations of the Module Pricing Data	BPI
5	Julia Pyper and Julian Spector, "*Foreign Solar Manufacturers Weigh Opening US Facilities as Tariff Decision Looms*" Greentech Media (Sept. 20, 2017)	Public
6	MJ Shiao and Shayle Kann, "*6 Ways to Encourage American Solar Manufacturing Without Import Duties*" Greentech Media (Sept. 25, 2017)	Public
7	Impact of the Section 201 Remedy on Employment in the US Solar Industry, Mayer Brown (Aug. 2017)	Public
8	Ran Fu, David Feldman, Robert Margolis, Mike Woodhouse and Kristen Ardani "*U.S. Solar Photovoltaic System Cost Benchmark: Q1 2017*" National Renewable Energy Laboratory (Sept. 2017)	Public
9	FBR – *Total Eclipse: Previewing Solar 201 Trade- Case Options*, (Sept. 5, 2017)	Public
10	Juergen Stein "*The case for U.S. solar manufacturing*" PV Magazine (Aug. 31, 2017)	Public
11	Vishal Shah and Rachel Lei, "*What does the ITC decision mean for solar sector?*" Deutsche Bank Markets Research (Sept. 22, 2017)	Public
12	Press Release, U.S. Department of Justice "*U.S. Charges Five Chinese Military Hackers for Cyber Espionage Against U.S. Corporations and a Labor Organization for Commercial Advantage*" (May 19, 2014)	Public
13	DOE Press Release on SunShot (Sept. 12, 2017)	Public
14	Excerpts, "*Blackout, Might hackers exploit inverter software vulnerabilities to bring down the power grid?*" Photon International, (Aug. 2017)	Public

NO.	DESCRIPTION	BPI/ PUBLIC
15	Memorandum from the General Counsel of the Commission entitled Remedy Recommendations in Section 201 Cases (July 3, 1984)	Public
16	Amy Harder, "*Into the Great Wide Open on Sola*r" Axios (Sept. 25, 2017)	Public
17	Roth Capital Partners "*The Solar Snapshot: 201 Loophole in Canada*" (Sept. 25, 2017)	Public

EXHIBIT 1

Suniva
The Brilliance of Solar Made Sensible®

Summary of Remedy Recommendations

I. Per-watt Tariffs

Cells	Modules
Year 1 = $0.25	Year 1 = $0.32
Year 2 = $0.245	Year 2 = $0.31
Year 3 = $0.24	Year 3 = $0.30
Year 4 = $0.235	Year 4 = $0.29

2. Per-watt Floor Price on Modules[1]

Year 1 = $0.74
Year 2 = $0.70
Year 3 = $0.66
Year 4 = $0.64

3. The Commission Should Recommend That President Issue An Executive Order Directing All U.S. Government Agencies To Require The Use Of U.S. Origin Solar Cells (Whether Or Not Partially or Fully Assembled Into Other Products)

4. The Commission Should Recommend That The President Issue An Executive Order Directing all U.S. Government Agencies To Require That Electricity Obtained Through Solar Power Purchase Agreements Be Generated Using U.S. Origin Solar Cells (Whether Or Not Partially or Fully Assembled Into Other Products)

5. The United States Should Conduct A Study Of Cyber, Electrical Grid And National Security Risks Of Non-U.S. Manufactured CSPV Cells And Modules

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[1] To avoid any ambiguity, the module minimum floor price is inclusive of the per-watt tariffs. By way of example, in year one, if a module is imported with a base price of $0.42 per watt, a 201 tariff of $0.32 per watt will be added to that price. The resulting per-watt value of the module thus becomes $0.74 – which meets the minimum floor price. In addition, Suniva notes that SolarWorld is recommending volume quotas instead of a floor price. Suniva has no objection to using a volume quota instead of a floor price, provided that it is used in conjunction with the per-watt tariffs on cells and modules.

6. The United States Should Initiate Bilateral And Multilateral Negotiations To Reduce Global Excess Capacity And Restore A Supply And Demand Balance In The Global Market

7. Suniva supports the disbursements of funds (with some possible suggestions as to the source of those funds), to be made available to those seeking the development of new or additional manufacturing capacity relating to the CSPV cell/module supply chain, including but not limited to, polysilicon production and wafer manufacturing. In addition, Suniva continues to believe that the United States should continue to seek an equitable resolution of the antidumping and countervailing duty funds that are under liquidation suspension due to U.S. Court of International Trade litigation.

* * *

EXHIBIT 2

EXHIBIT 2A

PUBLIC VERSION

3 Pages

Not Susceptible to Public Summarization

EXHIBIT 2B

PUBLIC VERSION

8 Pages

Not Susceptible to Public Summarization

EXHIBIT 2C

SEIA Solar Energy Industries Association®

Solar Market Insight 2015 Q4

Report

Link Download the PDF (http://www2.seia.org/l/139231/2016-03-05/2mxm8)

Purchase the Full Report (http://www.greentechmedia.com/research/ussmi) | Press Release (http://www.seia.org/news/us-solar-market-set-grow-119-2016-installations-reach-16-gw)

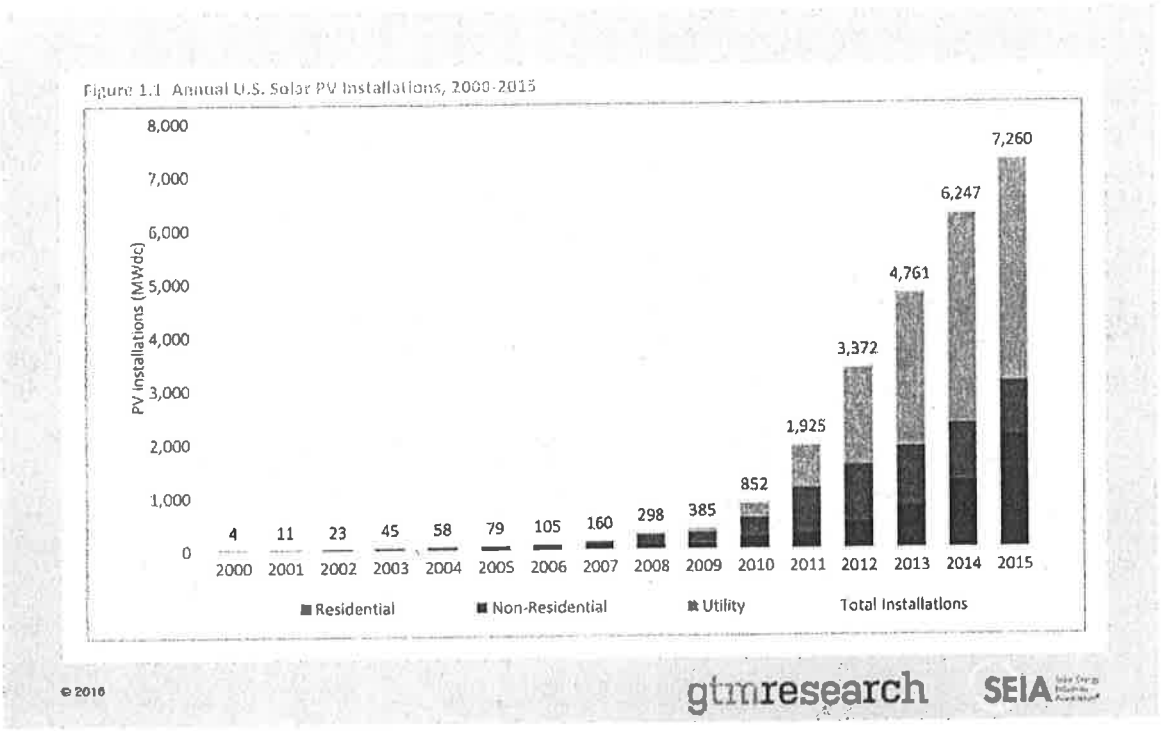
The quarterly SEIA/GTM Research U.S. Solar Market Insight™ report shows the major trends in the U.S. solar industry. Learn more about the U.S. Solar Market Insight Report (http://www.seia.org/research-resources/us-solar-market-insight/about).

Key Figures

- The U.S. installed 7,260 MWdc of solar PV in 2015, the largest annual total ever and 16% above 2014.
- Residential PV was once again the fastest-growing sector in U.S. solar, installing over 2 GWdc for the first time and growing 66% over 2014.
- Utility PV also had a record year with over 4 GWdc installed, up 6% over 2014, with nearly 20 GWdc still in development.
- Thirteen states installed over 100 MWdc of solar each in 2015, up from nine in 2014.
- 110 MW ac of concentrating solar power (CSP) capacity came on-line in late 2015, when SolarReserve's Crescent Dunes project began sending electricity to the grid.
- For the first time ever, solar beat out natural gas capacity additions, with solar supplying 29.4% of all new electric generating capacity brought on-line in the U.S. in 2015.
- Cumulative solar PV installations surpassed 25 GWdc by the end of the year, up from just 2 GWdc at the end of 2010. Cumulative CSP capacity now stands at 1.8 GWac.
- GTM Research forecasts that 16 GWdc of new PV installations will come on-line in 2016, up 120% over 2015. Utility PV is expected to drive the majority of demand, accounting for nearly three-fourths of new installations.

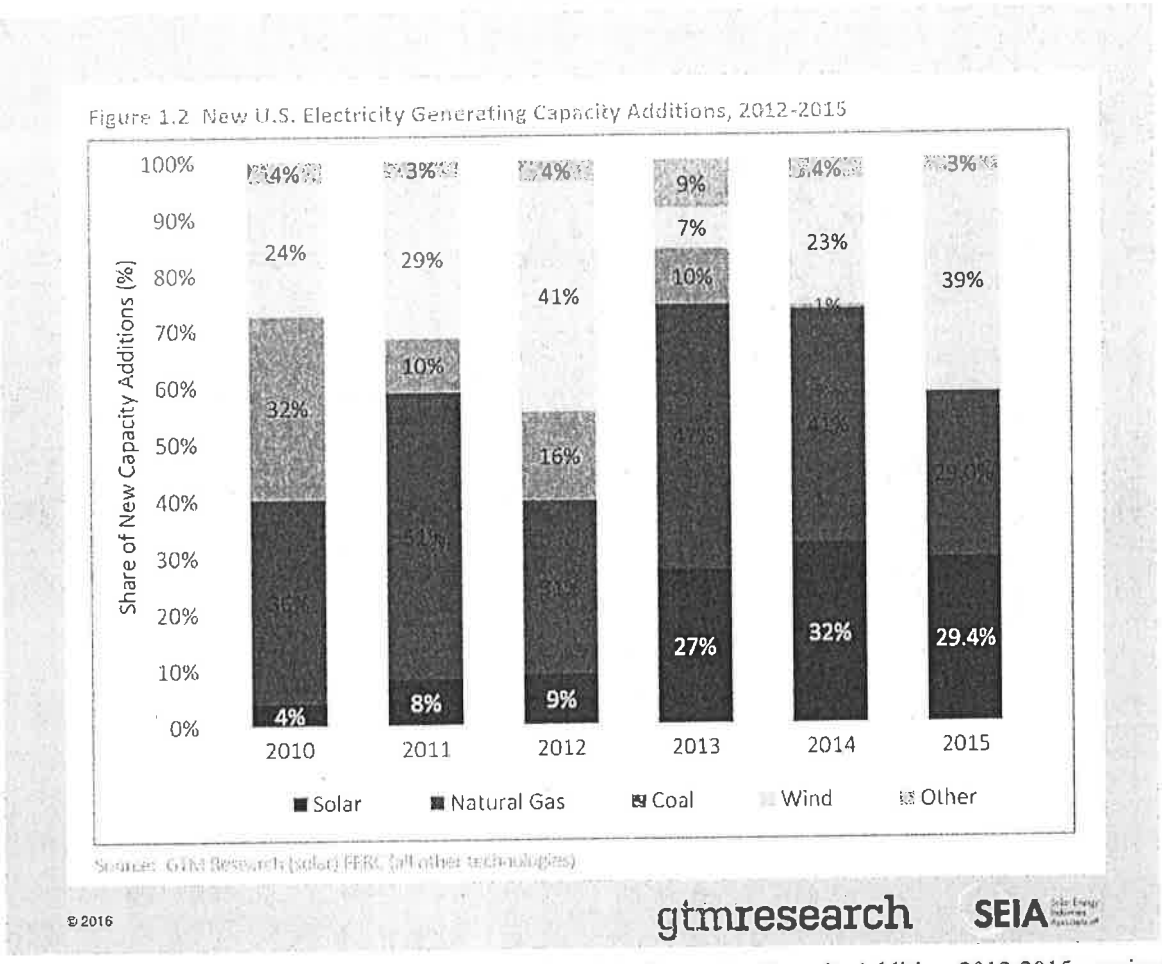
1. Introduction

2015 was a momentous year for solar power in the United States. Solar PV deployments reached an all-time high of 7,260 megawatts direct current (MWdc), up 16% over 2014 and 8.5 times the amount installed five years earlier. Total operating solar PV capacity reached 25.6 GWdc by the end of the year, with over 900,000 individual projects delivering power each day. By the the time this report is published in Q1 2016, the U.S. will be approaching its millionth solar PV installation.



(http://www.seia.org/sites/default/files/1-1-USSolarPVInstallations2010-Q22015-new.jpg)

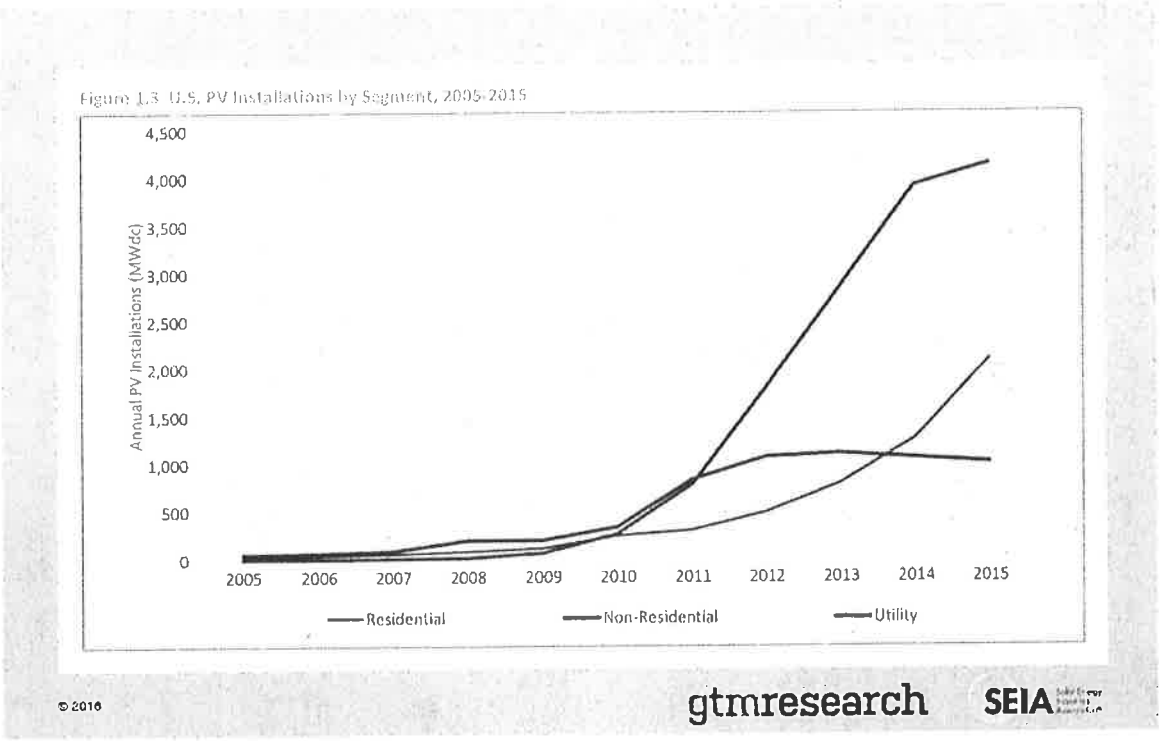
When accounting for all projects (both distributed and centralized), solar accounted for 29.4% of new electric generating capacity installed in the U.S. in 2015, exceeding the total for natural gas for the first time.



(http://www.seia.org/sites/default/files/1-2-NewUSElectricityGeneratingCapacityAdditions2012-2015-new.jpg)

At the market segment level, 2015 was largely a continuation of ongoing trends.

- Residential solar benefitted from a fourth consecutive year of >50% annual growth, with installations reaching 2,099 MWdc.
- Non-residential solar was essentially flat for the third year in a row, with 1,011 MWdc of installations. A mixture of market-specific factors and scaling challenges have plagued the sector, but numerous avenues remain for resumed growth over the coming year.
- Utility solar remained the largest segment by capacity, with 4,150 MWdc of installations in 2015. Even more notable than 2015 installation capacity is the current contracted project pipeline, which now exceeds 19.8 GWdc.

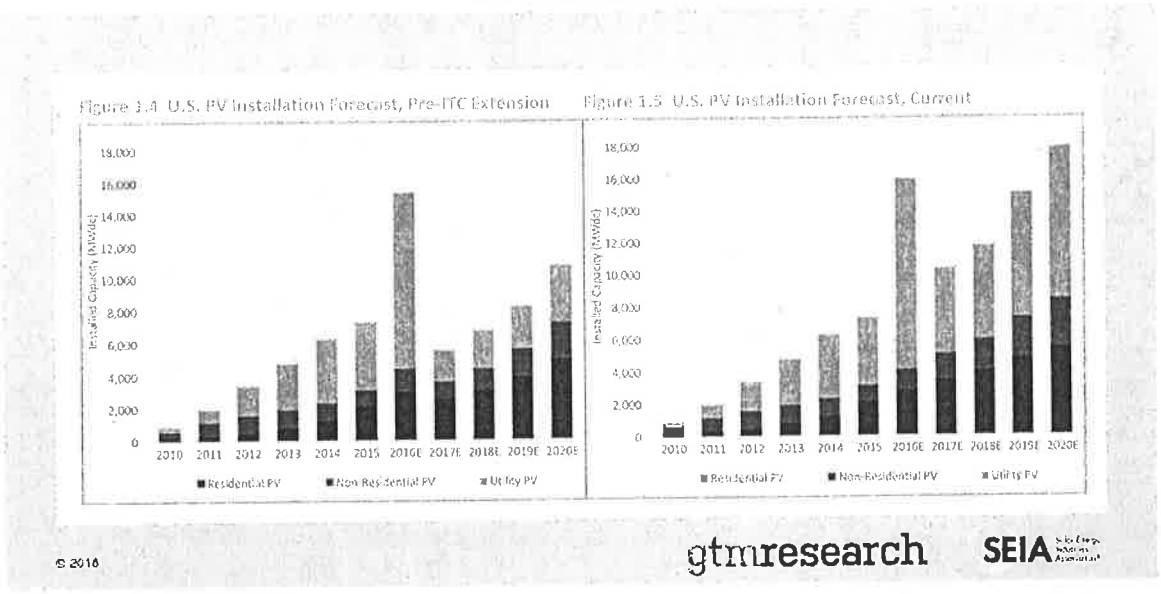


(http://www.seia.org/sites/default/files/1-3-USPVInstallationsbySegment2005-2015-new.jpg)

At the state level, the market remained relatively concentrated. The top 10 states accounted for 87% of all PV installations, and the top 20 states made up 96% of the market. But annual growth occurred in 24 of the 35 states we track individually, and 13 states installed over 100 MWdc of solar in 2015, up from nine in 2014. Six states (AZ, CA, MA, NV, NJ and NC) have surpassed 1 GW dc in cumulative solar capacity.

2015 was also a historic year for U.S. solar policy and regulation, with a number of decisions at both the state and federal level that will determine the trajectory of the market's future growth.

First, the federal Investment Tax Credit was extended through 2021 in December, and a "commence construction" rule was added, effectively providing the market with policy visibility through 2023. GTM Research estimates that this extension alone will result in more than 50% net growth in U.S. solar installations from 2016-2020, an additional 24 GWdc over the five-year period. As a result of this change and other market developments since December, we now anticipate that cumulative solar photovoltaic installations will reach 97 GWdc by the end of 2020.



(http://www.seia.org/sites/default/files/1-4-1-5-USPVInstallationForecast-PreITC-Current-new.jpg)

At the state level, net energy metering and electricity rate design came to the forefront of regulatory debates around solar in 2015, and a number of crucial decisions were reached. In California, the Public Utilities Commission (PUC) reached a final decision on the state's next wave of net metering (dubbed NEM 2.0), which makes relatively modest modifications for solar customers including mandatory time-of-use rates and no more netting out of non-bypassable charges with solar. This ruling has largely been viewed as favorable for solar, while the opposite is true in Nevada, where the state PUC issued an order that increases customer fixed charges, lowers solar export compensation and, most controversially, applies to existing, in addition to prospective, solar customers. The Nevada decision remains in flux as this report is being published, with a number of legal challenges pending on both the NEM revisions and the lack of grandfathering.

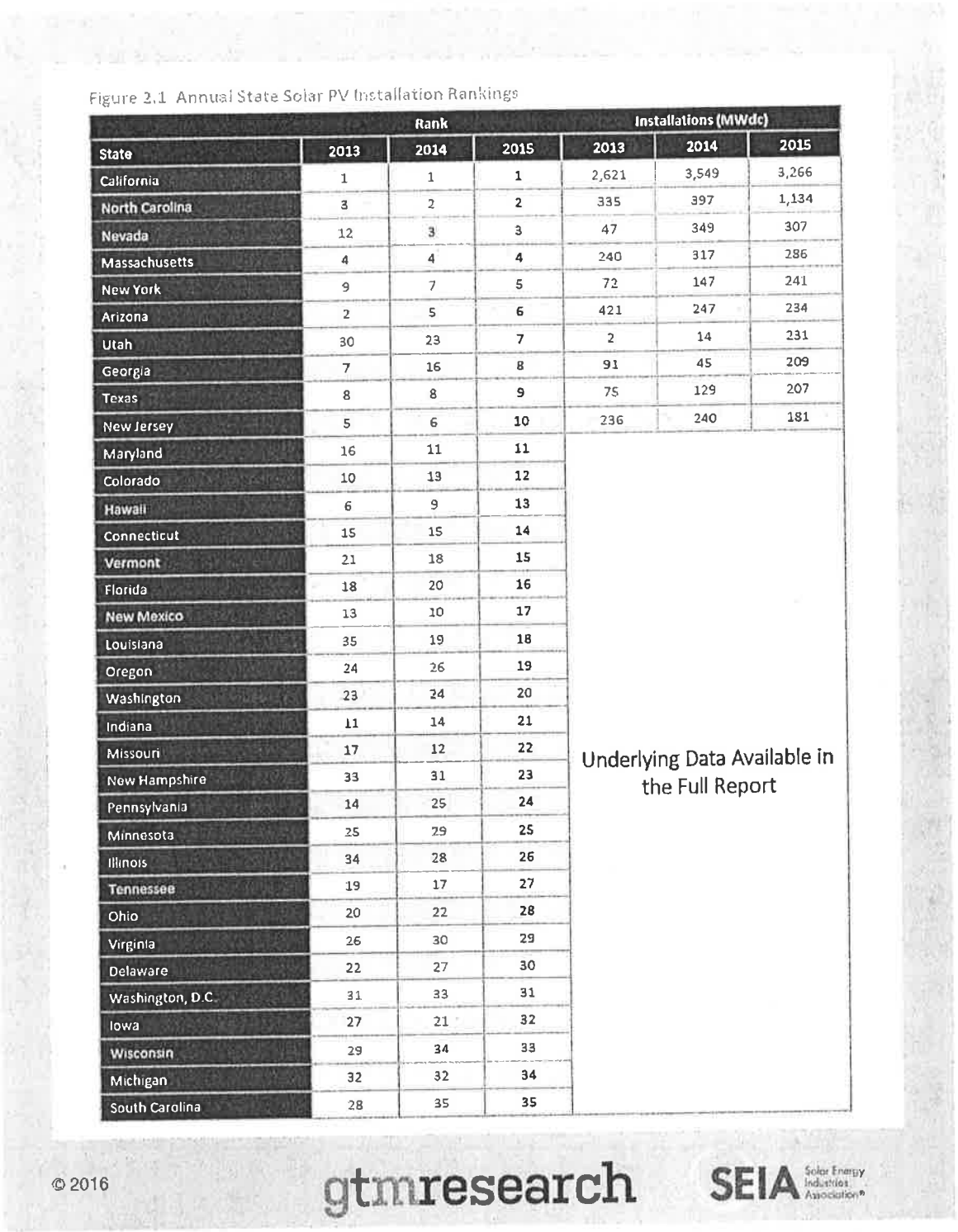
Looking ahead to the rest of 2016, we anticipate another banner year for U.S. solar, which will benefit from gigawatts of utility PV that rushed through the early stages of development to ensure interconnection in 2016, in the event that the federal ITC stepped down to 10%. In turn, we forecast 16 GWdc of solar PV installations, up 120% over 2015, driven in large part by a utility PV market that will add more capacity than total solar installations brought on-line in 2015.

2. Photovoltaics

Figure 2.1 Annual State Solar PV Installation Rankings

	Rank			Installations (MWdc)		
State	2013	2014	2015	2013	2014	2015
California	1	1	1	2,621	3,549	3,266
North Carolina	3	2	2	335	397	1,134
Nevada	12	3	3	47	349	307
Massachusetts	4	4	4	240	317	286
New York	9	7	5	72	147	241
Arizona	2	5	6	421	247	234
Utah	30	23	7	2	14	231
Georgia	7	16	8	91	45	209
Texas	8	8	9	75	129	207
New Jersey	5	6	10	236	240	181
Maryland	16	11	11			
Colorado	10	13	12			
Hawaii	6	9	13			
Connecticut	15	15	14			
Vermont	21	18	15			
Florida	18	20	16			
New Mexico	13	10	17			
Louisiana	35	19	18			
Oregon	24	26	19			
Washington	23	24	20			
Indiana	11	14	21			
Missouri	17	12	22			
New Hampshire	33	31	23			
Pennsylvania	14	25	24			
Minnesota	25	29	25			
Illinois	34	28	26			
Tennessee	19	17	27			
Ohio	20	22	28			
Virginia	26	30	29			
Delaware	22	27	30			
Washington, D.C.	31	33	31			
Iowa	27	21	32			
Wisconsin	29	34	33			
Michigan	32	32	34			
South Carolina	28	35	35			

Underlying Data Available in the Full Report



(http://www.seia.org/sites/default/files/2-1-AnnualStateSolarPVInstallationRanking.jpg)

2.1. Market Segment Trends

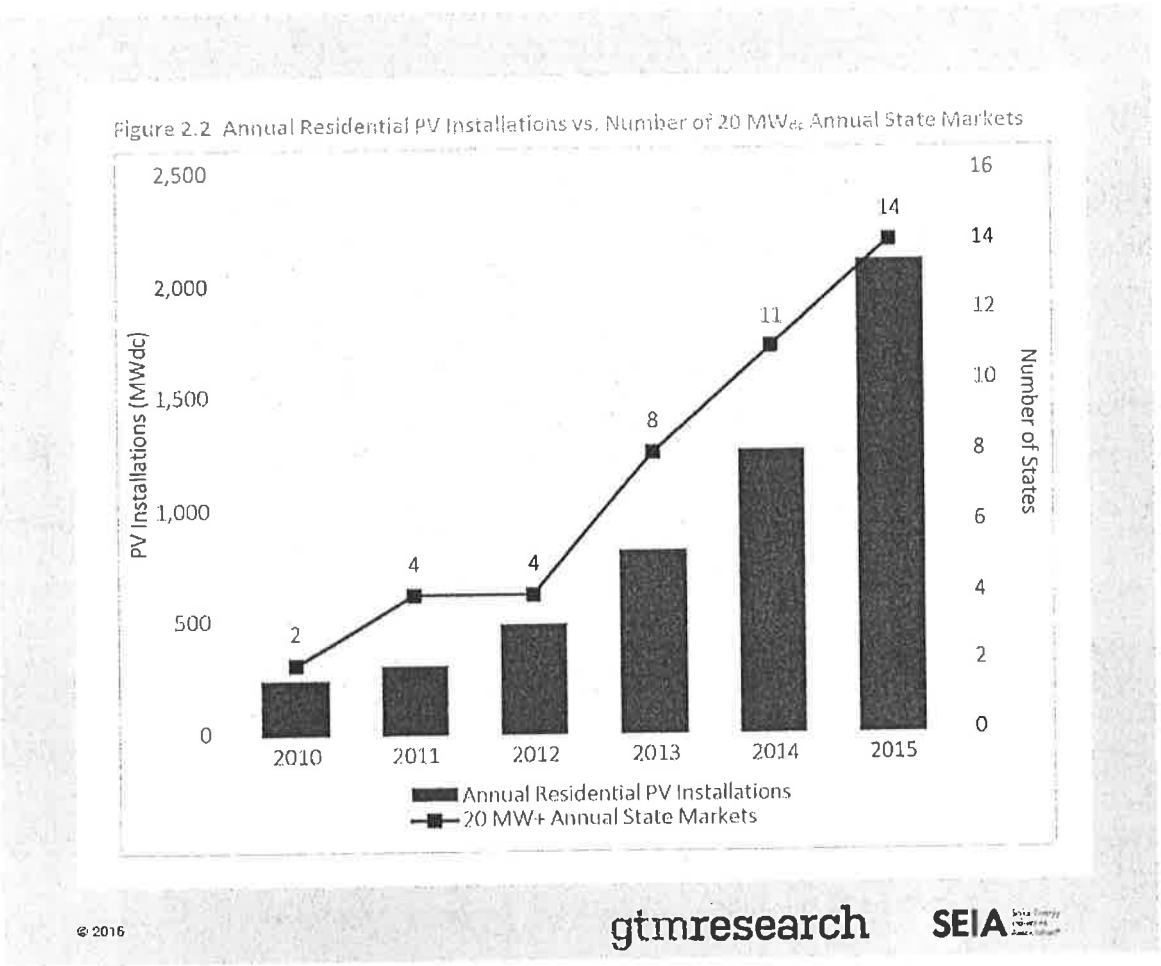
2.1.1. Residential PV

2,099 MWdc installed in 2015, representing 66% growth over 2014

The residential PV market experienced its largest annual growth rate to date, an impressive feat given that 2015 marked the fourth consecutive year of greater than 50% annual growth.

Similar to prior years, California served as the primary driver of demand, fueling nearly 50% of annual residential PV installations. However, the residential market is showing glimpses of geographic demand diversification, with the number of 20 MWdc annual state markets for residential solar increasing threefold over the past four years.

Figure 2.2 Annual Residential PV Installations vs. Number of 20 MWdc Annual State Markets



(http://www.seia.org/sites/default/files/2-2-AnnualResidentialPVInstallationsvsNumberof20MWSAnnualStateMarkets.jpg)

But while a growing number of state markets are picking up steam, an even larger number of states are considering reforms to net metering rules that threaten the market's ability to maintain a hockey-stick growth trajectory. Most recently, NEM reforms approved in Nevada are expected to drop the state from being the fifth-largest residential PV market in 2015 (based on annual installations) to the 31st in 2016.

2.1.2. Non-Residential PV

1,011 MWdc installed in 2015, down 5% from 2014

While residential solar's impressive growth storyline continued in 2015, so did the non-residential PV market's theme of flat demand. The continued stagnation in non-residential solar demand stems from states with either weak incentive funding or constrained development opportunities for 1+ MWdc projects. Amidst sluggish demand in most major state markets, the non-residential solar market became increasingly dependent on California, which experienced growth independent of state incentive funding thanks to solar-friendly rate structures and new development opportunities for 1+ MWdc projects.

Looking ahead, the 2016 rebound in non-residential PV demand will be supported by a triple-digit-megawatt pipeline of community solar projects, plus continued dependence on California to support nearly one-third of annual demand.

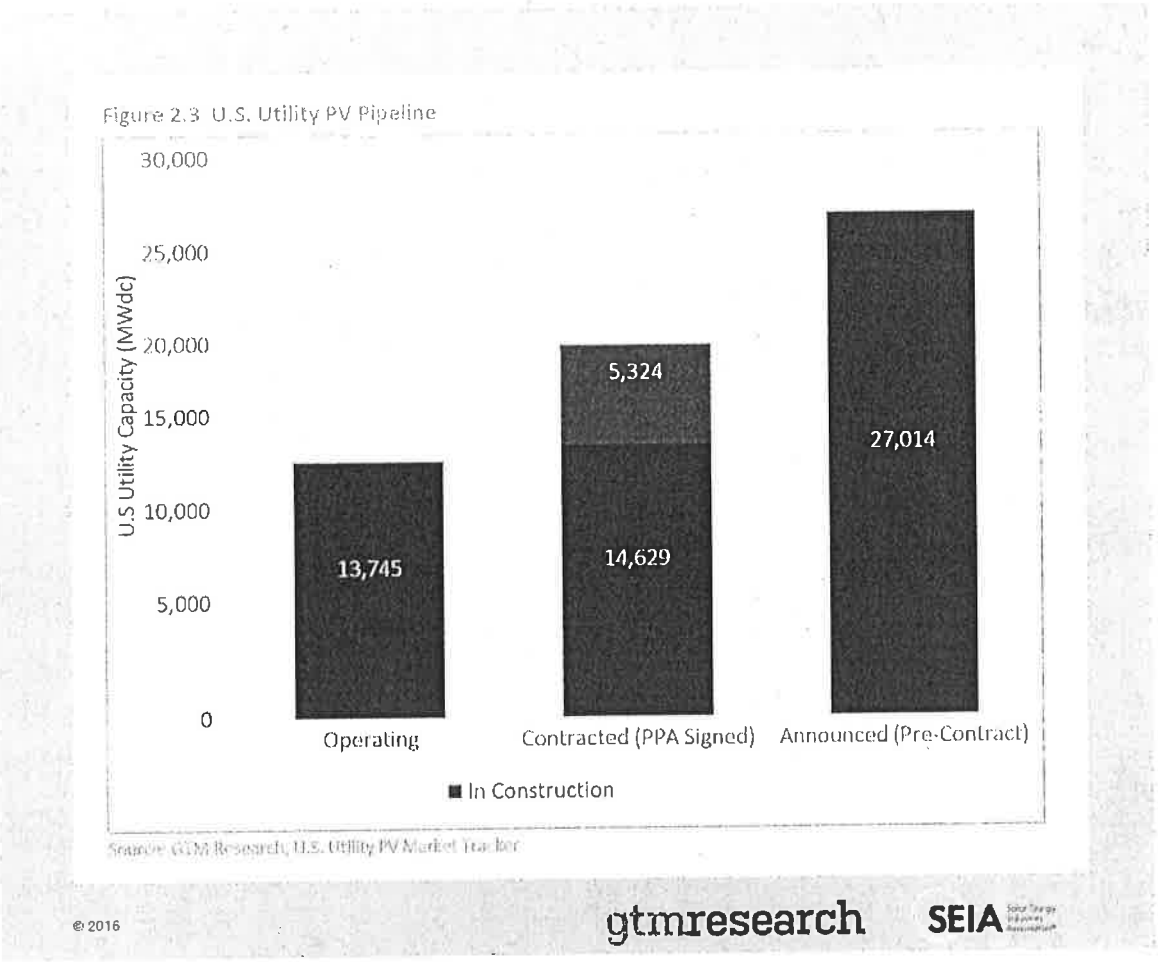
2.1.3. Utility PV

4,150 MWdc installed in 2015, representing 6% growth over 2014

The utility PV market continues to serve as the bedrock driver of installation growth in the U.S. solar market, accounting for 57% of capacity installed in 2015. Similar to prior years, demand was packed into the fourth quarter, with more utility PV capacity installed in Q4 2015 than the total U.S. solar installed in any prior quarter to date. This year, the Q4 boom was supported by developers in North Carolina rushing to complete projects ahead of an expiring in-state tax credit. In 2015, North Carolina became the first state besides California to add more than 1 GWdc of utility PV installations on an annual basis.

Looking ahead to 2016, the utility PV market is expected to nearly triple 2015 installations. Given a significant number of late stage projects with EPC agreements in place, in addition to the 5 GWdc already under construction, the utility PV market is expected to experience a sizable pull-in of demand despite the extension of the federal ITC.

With PPA prices for utility-scale solar already ranging between $35/MWh and $60/MWh, utility PV's value proposition is evolving beyond simply meeting renewable portfolio standard (RPS) obligations. On top of RPS-driven demand, centralized PV is proving to be an economically competitive resource to meet utilities' peak power needs. This is especially true in regions like Texas and the Southeast, where utilities are retiring their aging coal fleets and replacing them with utility PV, alongside combined-cycle natural gas plants.

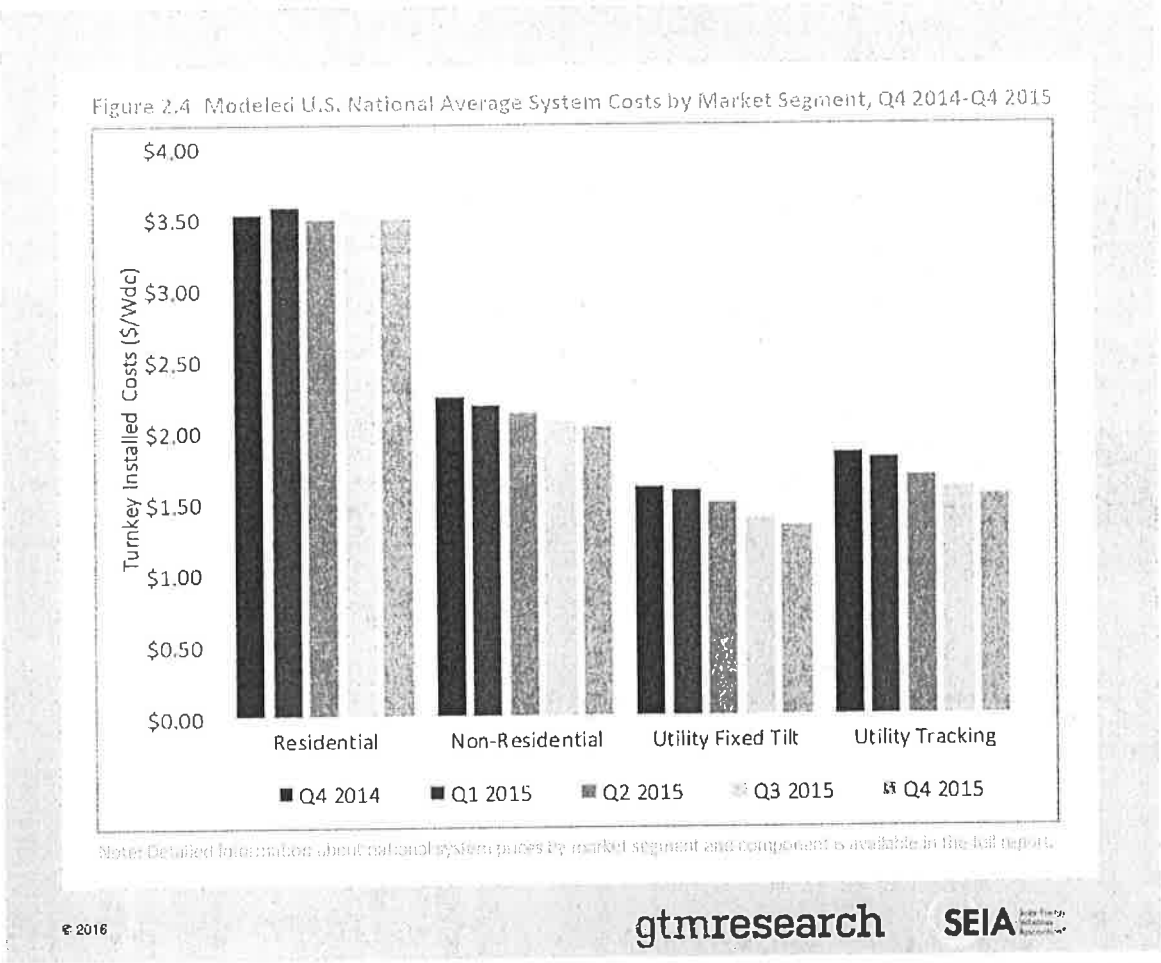


(http://www.seia.org/sites/default/files/2-3-USUtilityPVPipeline.jpg)

2.2. National Solar PV System Pricing

We utilize a bottom-up modeling methodology to track and report national average PV system pricing for the major market segments. Though we continue to solicit weighted-average system pricing directly from utility and state incentive programs, we believe that this data less accurately reflects the current state of system pricing. Systems utilizing local incentive programs constitute a minority share of the market, and data from these sources often represents pricing quoted well prior to the installation and connection date.

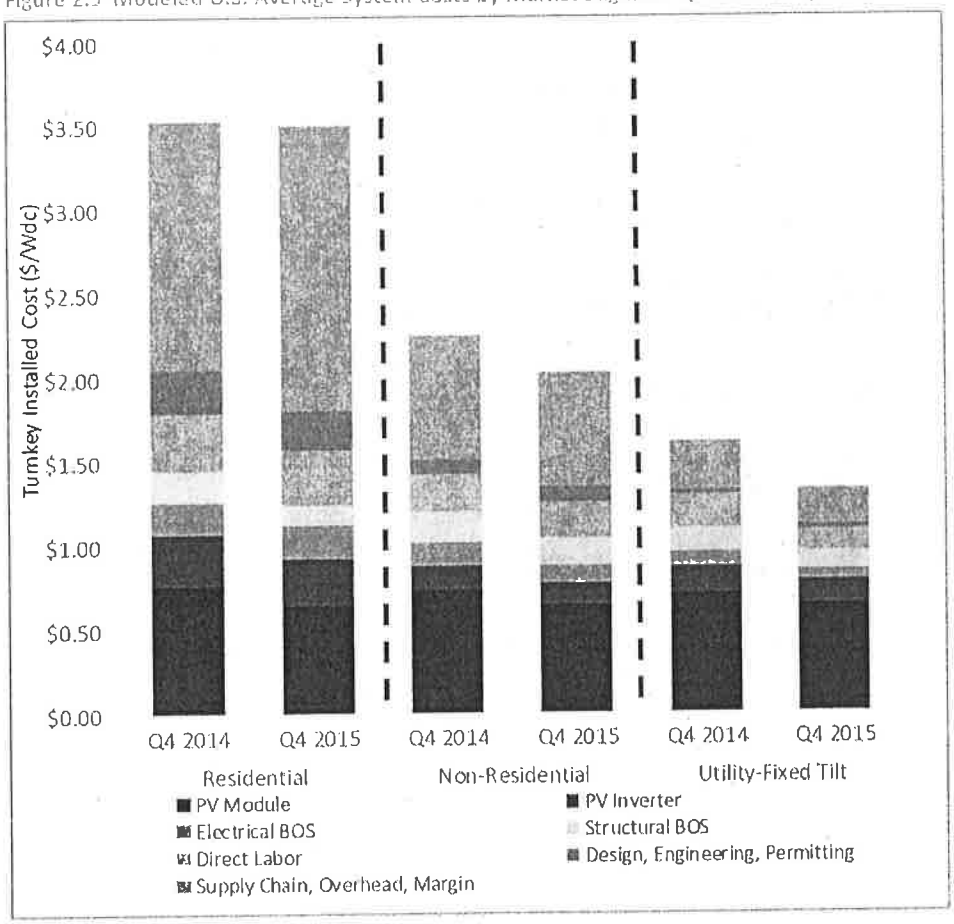
Our bottom-up methodology is based on tracked wholesale pricing of major solar components and data collected from interviews with major installers, supplemented by data collected from utility and state programs.



(http://www.seia.org/sites/default/files/2-4-ModeledUSNationalAverageSystemCostsbyMarketSegmentQ42014-Q42015-new.jpg)

Overall system pricing fell by up to 17% over the course of 2015, depending on the market segment, with the largest declines in the utility fixed-tilt sector. On a quarterly basis, pricing continues to trend downward with some levelling-off in the residential sector in particular due to strong investment in customer acquisition and the stubbornness of other soft costs. In the non- residential and utility sectors, there were annual declines of 10% and 17%, respectively. This reflects continued aggressive cost reductions, both in hardware and soft costs, in national system pricing on an aggregate basis. Moreover, as installers and EPCs expand to regions with lower labor and regulatory compliance costs, these regions will have a larger impact on aggregate pricing. Due to advantages from scale, variations in utility system costs are much smaller than variations in residential and non-residential solar costs.

Figure 2.5 Modeled U.S. Average System Costs by Market Segment Q4 2014 vs. Q4 2015



gtmresearch SEIA

(http://www.seia.org/sites/default/files/2-5-ModeledUSAverageSystemCostsbyMarketSegmentQ42014-Q42015-new.jpg)

Average pricing for residential rooftop systems landed at $3.50/Wdc in Q4 2015, with nearly 65% of costs coming from on-site labor, engineering, permitting and other soft costs.

While residential hardware costs have fallen by over 16% in the past year, soft costs have actually risen on an industry average basis by 7%, primarily due to rising customer acquisition costs among national and local players alike.

In the non-residential market soft costs remain a challenge as well. Hardware costs fell 15% year- over-year while soft costs saw a modest decrease of 6%. In Q4 2015 soft costs accounted for approximately 50% of total system pricing. Soft costs can be even higher for projects in areas with strict labor requirements and particularly in tough permitting and interconnection jurisdictions. In order to continue reducing costs, developers and EPCs are looking to squeeze additional power density for commercial sites and amortize fixed costs over more power output – and therefore reduce dollar-per-watt and dollar-per-kWh.

Utility fixed-tilt and utility tracking projects in Q4 2015 saw an average cost of $1.33/Wdc and $1.54/Wdc, respectively. While utility system pricing is more tightly clustered than residential and non-residential system prices, state-by-state variation is prevalent. The Southeast U.S. led in terms of the lowest system costs, and the region played a significant role in bringing national pricing downward for

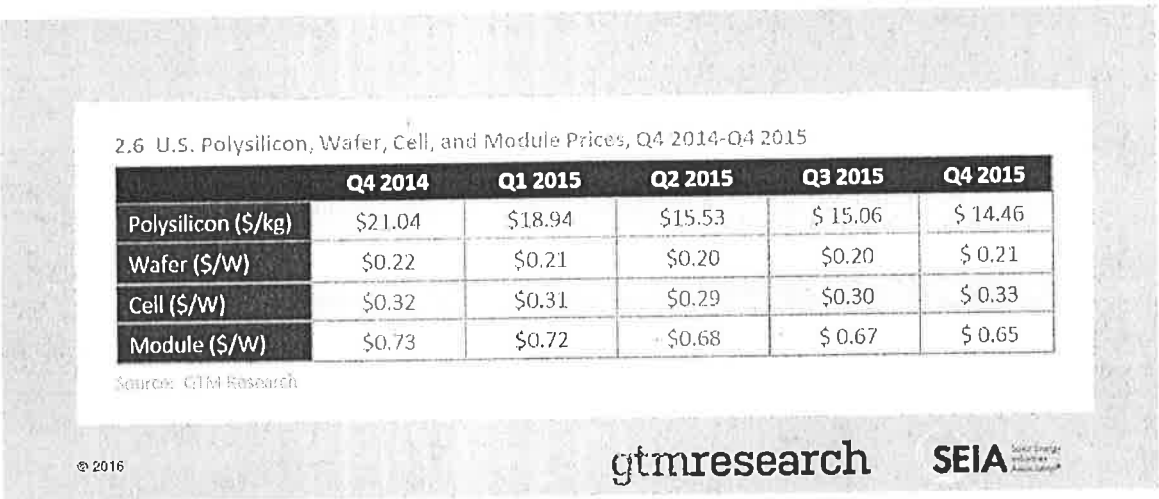
utility fixed-tilt systems in 2015. Throughout the country, utility EPCs and developers continue to optimize their logistics and supply chains, as well as leveraging more mature installation practices, which has translated into major reductions in non-hardware costs across the board. In 2015, soft costs decreased 37% and 23% in fixed-tilt and tracking project, respectively.

2.3. Component Pricing

While a tight supply-demand market and stronger demand pull-in helped push wafer and cell prices up in Q4 2015, polysilicon and module prices continued to be impacted by aggressive price strategies.

- For polysilicon, prices fell 4% sequentially to $14.46/kg in Q4 2015. Inventory levels and aggressive end-of-year price strategies continued to affect global polysilicon prices. Average selling prices for U.S. producers were driven by the closure of the processing loophole in China, which reduced U.S. producers' addressable market.
- Wafer prices were driven by strong demand pull-in and a tighter supply environment. This pushed wafer prices up 3% quarter-over-quarter to $0.21/W in Q4 2015.

U.S. module prices are largely driven by antidumping and countervailing duties on Chinese suppliers. In July 2015, the U.S. Department of Commerce filed its final review of the import tariffs on Chinese cells into the U.S. market. The final ruling set the cumulative duty at 30.61% for most major suppliers (21.70% for Yingli). During the fourth quarter, the average delivered price for Chinese modules ranged from $0.63/W on the low side (corresponding to order volumes greater than 10 MW for less established firms) to $0.65/W on the high side (established, bankable firms; order volumes of less than 1 MW). In 2016, prices are not expected to fluctuate as much as they did in 2015 due to expected strong demand pull-in. It should be noted that there is some price risk for producers that continue to ship all-Chinese products to the U.S. in 2016 as the tariff on Chinese cells may change again. Further, there is no assurance that the final results will resemble preliminary results (anti-dumping duties: 4.53% to 11.47%; countervailing duties: 19.62%).



	Q4 2014	Q1 2015	Q2 2015	Q3 2015	Q4 2015
Polysilicon ($/kg)	$21.04	$18.94	$15.53	$ 15.06	$ 14.46
Wafer ($/W)	$0.22	$0.21	$0.20	$0.20	$ 0.21
Cell ($/W)	$0.32	$0.31	$0.29	$0.30	$ 0.33
Module ($/W)	$0.73	$0.72	$0.68	$ 0.67	$ 0.65

(http://www.seia.org/sites/default/files/2-6-USPolysiliconWaferCellModulePricesQ42014-Q42015.jpg)

2.4. Market Outlook

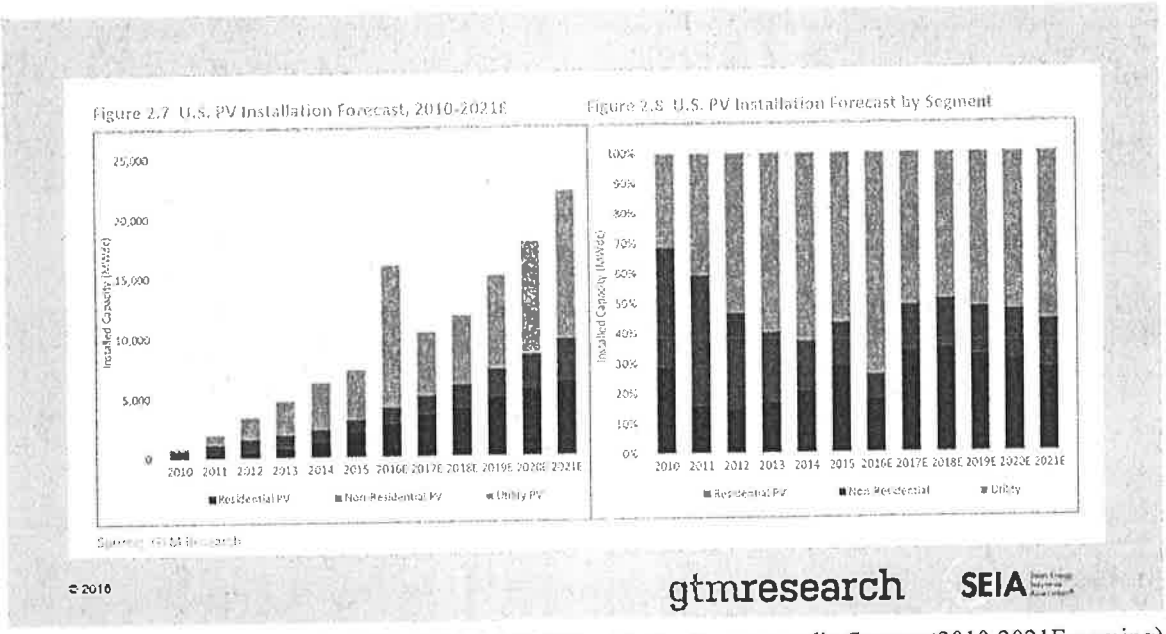
In December 2015, Congress passed an omnibus spending bill that included a multi-year extension of the federal Investment Tax Credit. Without question, the extension of the federal ITC ranks as the most important policy development for U.S. solar in almost a decade. Between 2016 and the end of the decade, the federal ITC extension will spur an additional 24 GWdc of PV capacity, positioning U.S. solar to become a 20 GWdc annual market by 2021.

Looking ahead, the federal ITC will remain at 30% through 2019, and then step down to 26% in 2020 and 22% in 2021. In 2022, it will step down to 10% for third-party-owned residential, non- residential, and utility PV projects, while expiring entirely for direct-owned residential PV. Equally important, projects that commence construction but do not interconnect in years 2019, 2020, and 2021 can qualify for correspondingly larger tax credits if they come on-line by the end of 2023.

Given the timing of the federal ITC extension, however, the wheels are already in motion for U.S. solar to benefit in 2016 from a double-digit-gigawatt pipeline of late-stage utility PV projects that rushed through development last year. In turn, we expect another record year for the U.S. PV market in 2016, with installations reaching 16 GWdc, a 119% increase over 2015. In 2017, while the residential and non-residential PV markets are both expected to grow year -over-year, the U.S. solar market is still expected to drop on annual basis due to the aforemention ed pull-in of utility PV demand in 2016.

In 2018, U.S. solar is expected to resume year-over-year growth across all market segments. And by 2021, more than half of all states in the U.S. will be 100+ MWdc annual solar markets, bringing cumulative U.S. solar installations above the 100 GWdc mark.

Forecast details by state (34 states plus Washington, D.C.) and market segment through 2021 are available in the full report (http://www.greentechmedia.com/research/ussmi) .



(http://www.seia.org/sites/default/files/2-7-2-8-USPVInstallationForecaseandbySegment2010-2021E-new.jpg)

3. Concentrating Solar Power

The final quarter of 2013 kicked off the first wave of mega-scale CSP projects to be completed over the next few years, and Q1 2014 built on that momentum, with 517 MWac brought on-line. This included BrightSource Energy's 392 MWac Ivanpah project and the second and final 125 MWac phase of NextEra's Genesis solar project. While Q2 2014 and Q3 2014 were dormant for CSP, Abengoa finished commissioning its 250 MWac Mojave Solar project in December 2014. As a result, 2014 ranked as the largest year ever for CSP, with 767 MWac brought on-line. In 2015, SolarReserve's 110 MWac Crescent Dunes project, which entered the commissioning phase in February 2014, achieved commercial operation in November 2015.

With Crescent Dunes now on-line, near-term growth prospects for the CSP market in the U.S. are bleak. On one hand, CSP paired with storage represents an attractive generation resource for utilities, offering a number of ancillary and resource-adequacy benefits. However, due to extensive permitting hurdles

that have confronted CSP project development timelines and federal ITC uncertainty in 2015, developers had put their CSP pipelines on hold.

Even with the federal ITC extension, the outlook for the CSP market will depend on further progress made toward mitigating early -stage development hurdles, lowering hardware costs, and strengthening the ancillary and capacity benefits provided by CSP paired with storage.

Acknowledgments

U.S. Solar Market Insight® is a quarterly publication of GTM Research and the Solar Energy Industries Association (SEIA)®. Each quarter, we collect granular data on the U.S. solar market from nearly 200 utilities, state agencies, installers and manufacturers. This data provides the backbone of this U.S. Solar Market Insight® report, in which we identify and analyze trends in U.S. solar demand, manufacturing and pricing by state and market segment. We also use this analysis to look forward and forecast demand over the next five years. All forecasts are from GTM Research; SEIA does not predict future pricing, bid terms, costs, deployment or supply.

- References, data, charts and analysis from this executive summary should be attributed to"GTM Research/SEIA U.S. Solar Market Insight®."
- Media inquiries should be directed to Mike Munsell (munsell@gtmresearch.com (mailto:munsell@gtmresearch.com)) at GTM Research and Alexandra Hobson (ahobson@seia.org (mailto:ahobson@seia.org)) at SEIA.
- All figures are sourced from GTM Research. For more detail on methodology and sources, visit www.gtmresearch.com/solarinsight (http://www.gtmresearch.com/solarinsight) .

Our coverage in the U.S. Solar Market Insight reports includes 34 individual states and Washington, D.C. However, the national totals reported include all 50 states, Washington, D.C., and Puerto Rico.

Detailed data and forecasts for 34 states and Washington, D.C. are contained within the full version of this report, available at www.greentechmedia.com/research/ussmi (http://www.greentechmedia.com/research/ussmi) .

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EXHIBIT 2D

PUBLIC VERSION

1 Page

Not Susceptible to Public Summarization

EXHIBIT 2E

Solar Developers Hoard Panels as U.S. Tariff Threat Looms

By **Joe Ryan** and **Chris Martin**
September 11, 2017, 7:01 PM EDT
Updated on September 12, 2017, 2:56 PM EDT
From

- Panel shortage forcing companies to put construction on hold
- U.S. solar prices have climbed 40% as supplies dry up

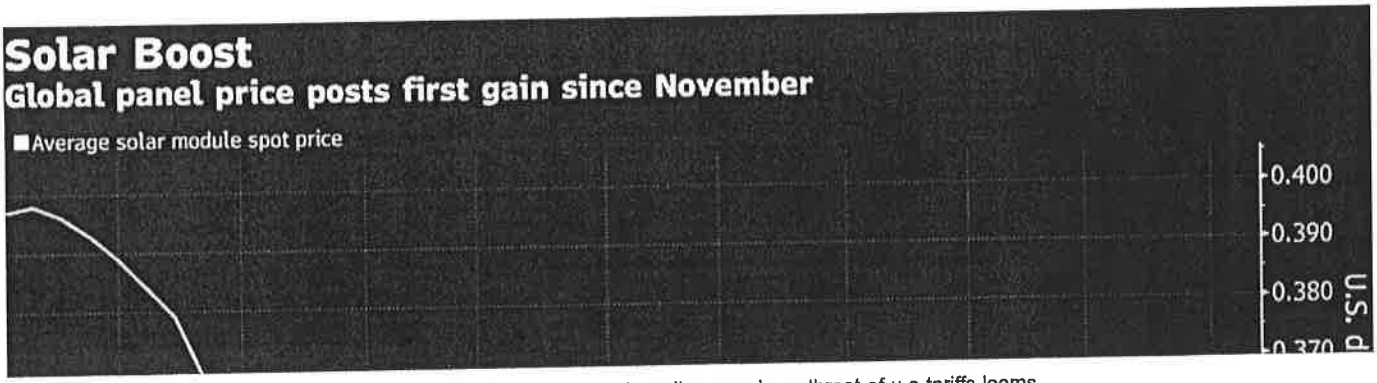
Solar developers are suspending construction as the looming threat of U.S. import tariffs has driven up prices and spurred hoarding, crimping panel supplies.

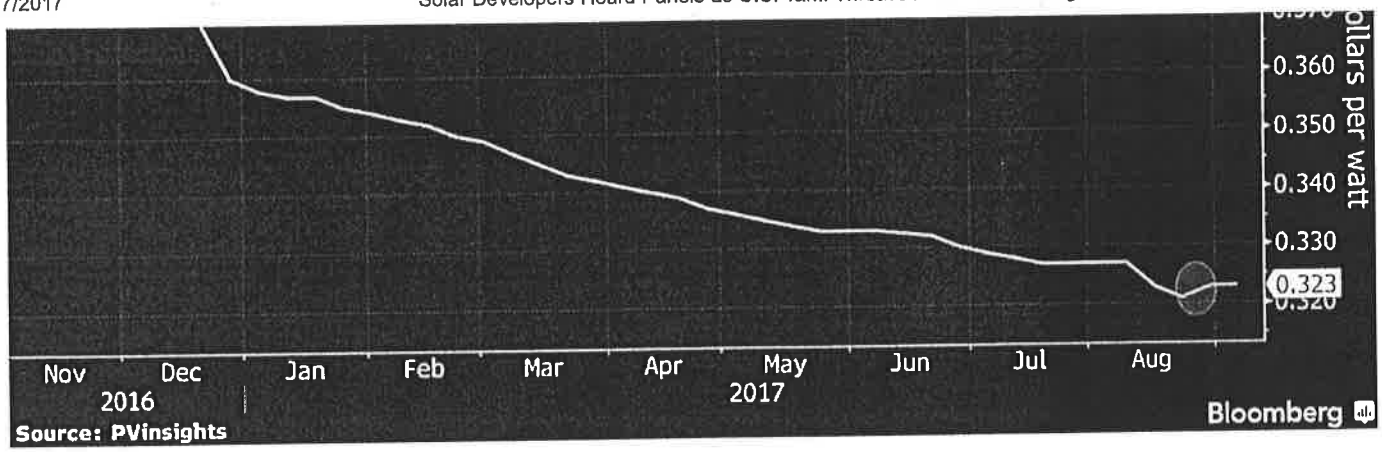
"We've had roughly $500 million worth of work that we've had to put on hold," said Scott Canada, who oversees renewable energy projects for McCarthy Building Cos. <https://www.bloomberg.com/quote/1270388Z:US> of St. Louis. "The supply of panels has just evaporated as everybody is grabbing what they can."

The disruptions date to about May, after bankrupt panel manufacturer Suniva Inc. filed a trade complaint <https://www.bloomberg.com/news/articles/2017-06-15/this-case-could-upend-america-s-29-billion-solar-industry> asking for protection from cheap imports. As the case gained steam, developers rushed to stockpile every available panel. The case is currently before the U.S. International Trade Commission and may eventually reach the Oval Office, where President Donald Trump <https://www.bloomberg.com/billionaires/id/1252249> has the authority to impose tariffs.

The crunch is an abrupt reversal for the $29 billion U.S solar industry, which six months ago was awash <https://www.bloomberg.com/news/articles/2016-08-23/solar-industry-braces-as-looming-glut-threatens-to-erode-prices> in inexpensive panels. Developers say prices have swelled by about 40 percent in the past four months, making some projects uneconomical to build. And that's if they're lucky enough to have a supplier at all.

"If you don't have panels lined up for '17 than you aren't going to get them," said Laura Stern, president and co-founder of Nautilus Solar Energy LLC in Summit, New Jersey. "The market is really tight."





Solar manufacturing is dominated by companies in China and elsewhere in Asia, where intense competition and booming output helped drag down global prices more than 50 percent in five years. While those declines have been a boon for companies that build solar farms, they've squeezed panel makers in markets with higher labor costs, including the U.S.

Georgia-based Suniva, which filed its trade case <https://www.bloomberg.com/news/articles/2017-04-26/china-owned-u-s-solar-maker-seeks-u-s-tariffs-on-china-imports> in April, is asking for tariffs that may double the price of panels in the U.S. The trade commission has until Sept. 22 to investigate the case and send its findings to Trump, who gets final say.

'Fingers Crossed'

"We've got our fingers crossed that smarter minds will prevail and we won't wind up with tariffs," said Andrew Giraldo, president of engineering, procurement and construction at National Renewable Energy Corp. <http://narenco.com/> of Charlotte, North Carolina.

Solar developers have vociferously opposed Suniva's trade complaint, saying tariffs on cheap imports will hobble demand for new installations and eliminate thousands of jobs. The case has also drawn criticism from free-market trade groups, including the R Street Institute, National Taxpayers Union, American Legislative Exchange Counsel and others who released a letter <http://www.rstreet.org/outreach/open-letter-to-the-u-s-international-trade-commission-avoid-tariffs-on-solar-panels/> Tuesday urging the trade commission to reject Suniva's plea.

"While we oppose government policies that pick winners and losers in the energy marketplace, we are equally hostile to protectionist trade measures that distort markets and invite retaliation by our trading partners," the groups wrote.

Panels account for about 40 percent of the cost of solar farms, and even modest price swings can drag a project underwater. Before the Suniva complaint, panels were selling for about 32 cents a watt in the U.S. Now developers say they are paying as much as 45 cents. That drove up the global average price last month by the most in more than two years.

Suniva's trade case isn't the only reason for the shortage. China, the world's largest solar market, caught analysts by surprise this year by announcing plans to more than double the nation's total solar capacity by the end of 2020. That's boosted demand in the backyard of the largest panels makers, including JinkoSolar Holding Co., JA Solar Holdings Co. <https://www.bloomberg.com/quote/JASO:US> and Trina Solar Ltd. <https://www.bloomberg.com/quote/TSL:US>

Reselling Contracts

Supplies are so thin in the U.S. that companies are reselling panel contracts on the secondary market, said Duncan Frederick of Rosendin Electric Inc. <https://www.bloomberg.com/quote/3584789Z:US> , a San Jose, California-based solar contractor that's built more than 2.2 gigawatts.

Still, the current shortage is apt to be short lived, analysts said. U.S. installations are forecast to decline <https://www.bloomberg.com/news/articles/2017-09-11/u-s-solar-bracing-for-first-decline-as-rooftop-demand-slumps> next year, and manufacturers aren't cutting production capacity. Once the Suniva case is resolved, no matter the outcome, panel prices will stabilize.

"This should be behind the industry by the end of the year," said Credit Suisse Group AG analyst Maheep Mandloi.

But for now, the case has roiled the industry and even long-term supply agreements are no guarantee that developers can get panels. Borrego Solar Systems Inc. <https://www.bloomberg.com/quote/3204230Z:US> has been forced to delay projects for months because its suppliers can't deliver equipment on time, said its president, Aaron Hall. In other cases, panel makers have pushed to renegotiate contracts to secure higher prices.

"We are struggling hard," Hall said. "We are having to take fewer panels than promised and at higher prices."

EXHIBIT 2F

On this episode of solar hoarders: Developers gobble panels before possible price hike

Bloomberg New Energy Finance reports on "the Suniva effect," in which the Section 201 trade case is causing project delays as uncertainty over panel prices spooks industry.

SEPTEMBER 14, 2017 FRANK ANDORKA

MARKETS & POLICY POLICY NORTH AMERICA UNITED STATES WORLD

USITC

The hollowed out eyes of solar developers at Solar Power International earlier this week told the tale: The Suniva effect, first identified by **pv magazine**, is taking its toll.

Now Bloomberg New Energy Finance (BNEF) confirms our earlier reporting (suggested by Inovateus Solar in July and reinforced by Standard Solar earlier this week), saying panel shortages are causing project delays eight days before the critical U.S. International Trade Commission (USITC) renders its decision in the injury phase of the Suniva/SolarWorld Section 201 trade complaint that could significantly raise panel prices.

As 2017 comes to a close and developers start planning for what was expected to be a robust project pipeline next year, developers are scrambling to find panels in case the USITC agrees with the petitioners that they have suffered significant injury from international competition and recommends that stringent tariffs be imposed. Suniva and SolarWorld are asking for tariffs that would raise prices to $0.78/watt, up from the $0.45/watt currently reported by BNEF.

As Jefferson Gerwig, purchasing manager for Indiana-based developer Inovateus Solar told **pv magazine** in July:

> *It's hard to bid on projects right now because of the uncertainty of what module prices will be for next year We've seen a lot of people at [Intersolar North America] who have these projects they are ready to develop. Any deal signed here, though, has to come with a big asterisk, saying 'these prices are subject to change depending on the Section 201 trade case.'*

BNEF reports that developers are reporting prices have swelled 40% in the past four months, making some projects uneconomical to build, if they can find panels at all. And while there *are* shortages that occur most years toward the end as suppliers sell out their final inventory, this year the shortages started much earlier.

But the heated debate over the trade petition, which culminated in sharp exchanges during UITC testimony from both sides, is expected to start winding down starting on Sept. 22, the date the USITC delivers its injury decision. Once that occurs, the commission will deliver a final report to President Donald J. Trump on Nov. 13, after which he will, under his almost limitless powers to impose tariffs, decide what, if any, action the United States will take.

The debate over panel prices started in April, when panel manufacturer Suniva filed for bankruptcy on April 18 and filed trade complaints against its Chinese competitors under Sections 201 and 202 of the Trade Act of 1974 with the ITC eight days later. SolarWorld joined the petition in early May.

FRANK ANDORKA

Frank Andorka has been writing professionally for nearly 29 years and spent nearly 20 years in trade publications. He was the founding editor of Solar Power World and has covered all aspects of the solar industry from policy to panels and everything in between.

More articles from Frank Andorka

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EXHIBIT 2G

#MARKET NEWS JULY 25, 2017 / 7:00 AM / 2 MONTHS AGO

RPT-INSIGHT-Prospect of Trump tariff casts pall over U.S. solar industry

Reuters Staff 8 MIN READ

(Repeats for additional clients with no changes to text)

By Nichola Groom

LOS ANGELES, July 25 (Reuters) - U.S. solar companies are snapping up cheap imported solar panels ahead of a trade decision by the Trump administration that could drive up costs and cloud the fortunes of one of the economy's brightest stars.

Domestic consumers and businesses have been embracing solar energy at a furious pace - thanks to a big assist from China. Low-cost

photovoltaic cells and panels made in China and other Asian countries have helped drive down costs by around 70% since 2010, enabling more Americans to go solar.

Installations in the United States last year hit a record. Jobs are mushrooming too. The domestic industry now employs more than 260,000 people, according to The Solar Foundation, most of them construction workers hammering panels on rooftops and erecting utility-scale solar plants in the nation's blistering deserts.

But signs of a chill are already visible as the industry waits to see how President Donald Trump responds to a recent trade complaint lodged by a Georgia manufacturer named Suniva. The company has asked the administration effectively to double the price of imported solar panels so that U.S. factories can compete. About 95% of cells and panels sold in the U.S. last year were made abroad, with most coming from China, Malaysia and the Philippines, according to SPV Market Research.

Trump has wide latitude to levy tariffs to protect domestic firms. His actions could determine whether sun-powered electricity can compete with fossil fuels to light the nation's homes and businesses.

The White House would not comment on the solar trade case. But the administration has vowed to protect steelmakers and other U.S. manufacturers by penalizing "unfair" imports.

That has the solar industry bracing for the worst. Panic buying has sent spot prices for solar panels up as much as 20 percent in recent weeks as installers rush to lock up supplies ahead of potential tariffs.

Skittish U.S. energy customers are putting some solar projects on hold. Manufacturers are eyeing other markets to develop. And some investors are running for cover. Funding for large U.S. solar deals fell to $1.4 billion in the second quarter, down from $3.2 billion in the first quarter and $1.7 billion a year earlier, primarily due to concerns about the trade case, according to research firm Mercom Capital Group.

Developers of solar farms that provide utilities and big companies with energy are particularly vulnerable; panels account for as much as half of the cost of their projects.

A steep rise in panel prices "could be huge and disastrous for large-scale solar," said Tom Werner, chief executive of San Jose-based SunPower Corp, a top U.S. solar company that is majority owned by France's Total. "Developers are alarmed and planning."

Solar firms that cater to homeowners are nervous too. A spike in panel prices could slow residential installations and all the jobs that come with them.

(For a look at the booming U.S. solar sector, see tmsnrt.rs/2ttRRLG)

Ed Fenster, chairman of San Francisco-based Sunrun, said moves by Trump to punish foreign manufacturers could harm American blue collar workers he has vowed to help. The solar industry employs more than five times as many workers as the coal mining industry that Trump has championed.

"A solar-panel tax imperils what our country needs most: well-paying jobs that can't be exported or automated," Fenster said.

WATCH LIVE: Senate hearing on threats to U.S. homeland

SEEKING RELIEF

The solar spat is just the latest example of global trade that has been hard on U.S. factories but delivered huge cost savings for consumers.

The United States invented photovoltaic technology and accounted for more than a quarter of global solar manufacturing as recently as 2001. But its share has dropped to less than 2 percent due mainly to China, now the world's top producer.

Competitors have long complained that Chinese companies use government subsidies and illegal dumping to capture market share. The United States in 2012 slapped duties averaging around 40 percent on firms from China, and in 2014 imposed average duties of about 20 percent on producers from Taiwan, according to GTM Research.

Those levies are still in effect. But Suniva, which filed for bankruptcy protection in April, is looking for more. Less than two weeks after its Chapter 11 filing, it lodged a rare form of trade complaint with the U.S. International Trade Commission (ITC).

In its petition, Suniva said previous tariffs weren't working because China and Taiwan were just shifting production to other low-wage countries to avoid the duties.

It asked the government to establish a minimum price of 78 cents a watt on panels produced anywhere outside the U.S. to keep companies from circumventing the penalties. That's more than double the average of 35 cents a watt that prevailed before the recent price run-up.

Ironically, Suniva since 2015 has been majority owned by a Chinese firm. In May, SolarWorld Americas Inc., the U.S. division of Germany's SolarWorld AG, joined Suniva as a co-petitioner on the case.

Suniva is looking to give American producers "the opportunity to succeed," the firm's attorney Christian Hudson told Reuters in an emailed statement.

"If U.S.-based solar manufacturing disappears, then developers and installers will ultimately face greater volatility, as the manufacturing industry will ultimately come from one sector of the world," Hudson wrote.

The ITC has said it will decide by September 22 whether imports have harmed domestic producers. If it finds serious injury, the commission by November 13 will recommend remedies to the president, who is free to implement ITC's advice or do something different.

What Trump might do is anyone's guess. He has been largely dismissive of renewable energy until recently, when he suggested putting solar panels on his proposed border wall with Mexico.

China is all but certain to retaliate if he takes action. It responded to the 2012 tariffs by imposing its own duties on U.S.-made polysilicon, the raw material used in solar cells.

BRACING FOR THE WORST

Solar players are already changing their business practices.

Korea-based Hanwha Q CELLS Co Ltd has inserted a clause into its contracts allowing the panel maker to cancel or suspend U.S. shipments if Trump imposes new trade remedies.

SunPower, which manufactures panels in the United States and the Philippines and is also a major U.S. project developer, would "without question" look abroad for more business if the U.S. industry is hobbled by tariffs, Werner, its CEO, said.

Southern Current LLC, a South Carolina-based solar company that builds utility-scale and residential projects, has been purchasing modules and warehousing them for future use. Normally the company waits until a deal is financed, according to Bret Sowers, vice president of development and strategy.

"We are putting money at risk to buy panels because we are worried that we won't be able to get them," he said.

In Texas, utility Austin Energy warned that one of its solar power plants could be delayed if tariffs are imposed, it said in an emailed statement.

St. Louis-based McCarthy Building Companies, which constructs large solar farms, recently had a project shelved due to all the uncertainty, said Scott Canada, senior vice president of renewable energy.

But at least one company is benefiting: Tempe, Arizona-based First Solar Inc.

First Solar's panels are made from cadmium telluride, not the crystalline silicon that dominates the market and is the target of the trade case. The company's shares have gained more than 50 percent since Suniva filed its petition.

First Solar declined to comment, saying it was in a "quiet period" ahead of releasing its quarterly results on July 27.

Additional reporting by Yuna Park in Seoul; Editing by Marla Dickerson

Our Standards: *The Thomson Reuters Trust Principles.*

EXHIBIT 2H

PUBLIC VERSION

21 Pages

Not Susceptible to Public Summarization

EXHIBIT 3

PUBLIC VERSION

DECLARATION OF MATT CARD OF SUNIVA, INC.

I, Matt Card, Executive Vice President of Commercial Operations of Suniva, Inc. ("Suniva"), hereby certify and affirm as follows:

1. Suniva is requesting that a tariff be applied to imports of CSPV cells (whether or not fully assembled into other products) on a per-watt basis (vs. an *ad valorem* basis).

2. A tariff on a per-watt basis was recommended by [

]

3. [

] During this time, the United States imposed antidumping and countervailing duties on imports of CSPV products from China.

4. During discussions about the remedy Suniva would request in the Section 201 investigation, [

] by the United States in connection with the antidumping and countervailing investigations by intentionally understating the value of their imported goods.

5. Suniva has every reason to believe that such duty evasion would happen again if the Commission recommends an *ad valorem* tariff. This is because any tariff imposed as a result of the Section 201 proceeding will apply to largely the same group of Chinese manufacturers (either directly or through affiliated companies) involved in the previous antidumping and countervailing investigations.

I declare that all statements made above are true and correct.

9/26/2017

Date

Matt Card

EXHIBIT 4

1 Page

Not Susceptible to Public Summarization

EXHIBIT 5

MANUFACTURING

Foreign Solar Manufacturers Weigh Opening US Facilities as Tariff Decision Looms

The first companies to announce new U.S. solar plants could end up ahead of the competition, or making a terrible mistake. "It's a coin toss."

by Julia Pyper (https://www.greentechmedia.com/authors/julia-pyper), Julian Spector
September 20, 2017

The pending U.S. solar trade case is about to hit a major crossroad.

On Friday, September 22, the U.S. International Trade Commission will determine whether or not the few remaining domestic solar manufacturers have sustained "serious injury" from imported solar products. If the answer is no, the case brought by petitioners Suniva and SolarWorld will be dismissed. If the answer is yes, the governing body will work on a proposed remedy (https://www.greentechmedia.com/articles/read/the-government-is-moving-forward-with-suniva-solar-trade-case). Ultimately, President Donald Trump will have the ability to accept, reject or reform the ITC's recommended solution.

The Solar Energy Industries Association (SEIA), in partnership with utilities (https://www.greentechmedia.com/articles/read/utilities-solar-trade-protections-do-more-harm-than-good), solar supply-chain companies (https://www.greentechmedia.com/articles/read/us-solar-manufacturers-oppose-suniva-solarworld-trade-petition) and free-market advocates (https://www.greentechmedia.com/articles/read/conservative-groups-oppose-suniva-solarworld-trade-case), has been urging commissioners to oppose new trade barriers. Earlier this week, SEIA filed a letter (https://www.seia.org/sites/default/files/2017-

09/2017-09-19%20SEIA%20Comments%20on%20Petitioner%20Failure%20to%20Submit%20Adjustment%20Plan....pdf) with the ITC criticizing Sunvia and SolarWorld for not submitting a plan for how they'll function as viable U.S. solar cell and panel manufacturers in the event they are granted trade relief.

Meanwhile, companies outside of the U.S. have been quietly making their own arrangements.

Several foreign solar cell and module makers said they're exploring options to avoid potential trade restrictions by opening new solar manufacturing facilities in the U.S. -- something President Trump would very likely want to see.

"It makes sense, right?" said Tom Zhao, managing director for global sales in BYD's solar and energy storage division, in an interview last week at Solar Power International (SPI). "We follow Mr. Trump's requirement about 'Made in U.S.' Win the jobs back for the U.S. Because the demand is here, our customer is here, our friend is here."

According to Gagan Pal, chief marketing officer of Adani Solar, a fast-growing solar PV manufacturing business based in Ahmedabad, India, new tariffs aren't necessarily a bad thing. While trade cases don't align with free market principles, a policy that "puts everyone at par ... is helpful," he said. For Adani and others, the Suniva/SolarWorld trade case could help justify opening a new U.S.-based solar manufacturing facility.

"If [new tariffs] come into effect, I think the clear direction that will emerge from this is that manufacturing in the U.S. will be incentivized, or supported by direct or indirect means," Pal said.

UPDATE: Pal underscored that his comments are not an endorsement of U.S. duties or tariffs on imported solar products. They are only in reference to a potentially severe outcome of the trade case. All sources noted that timing constraints make investments in the U.S. high risk and potentially infeasible.

The smartest or the dumbest guy in the room?

Adani Solar, a subsidiary of the Indian conglomerate Adani Group, could be well positioned to take advantage of tariffs on imported solar cells and a floor price on modules (https://www.greentechmedia.com/articles/read/the-government-is-moving-forward-with-suniva-solar-trade-case) -- should they be approved.

Two years ago, Adani Solar established an office in Florida and hired a small team to study the potential for expanding into the U.S. solar market. The effort initially focused on co-development, joint ventures and other opportunities, said Pal. Now, Adani is looking at whether or not to launch a full-fledged production facility for solar cells and modules.

The decision isn't only tied to the Suniva/SolarWorld petition, "but truly related to the overall perspective within the Adani group to expand in global markets," Pal said.

Expanding to the U.S. would fit into Adani's broader business plan. The company recently built a 1.2 gigawatt solar cell and module factory in India and is in the process of expanding that plant to 1.5 gigawatts over the next three months. Pal noted that Adani was interested in expanding operations in the U.S. before the trade case emerged.

Still, Pal said his company is waiting for the final outcome of the ITC case to see if a U.S. factory would make commercial sense.

GTM spoke with several solar manufacturers and their partners at SPI who gave similar responses: they're waiting on Friday's ITC decision before making any big decisions. One major solar project developer indicated that a supply deal is already the works. Separately, a solar panel manufacturer said plans to open a U.S. factory are already underway. But in both cases, details could not be confirmed.

Companies were hesitant to address their plans on the record due to the sensitivity of the pending case. The overwhelming response among panel suppliers that did comment is that they're keeping all options on the table.

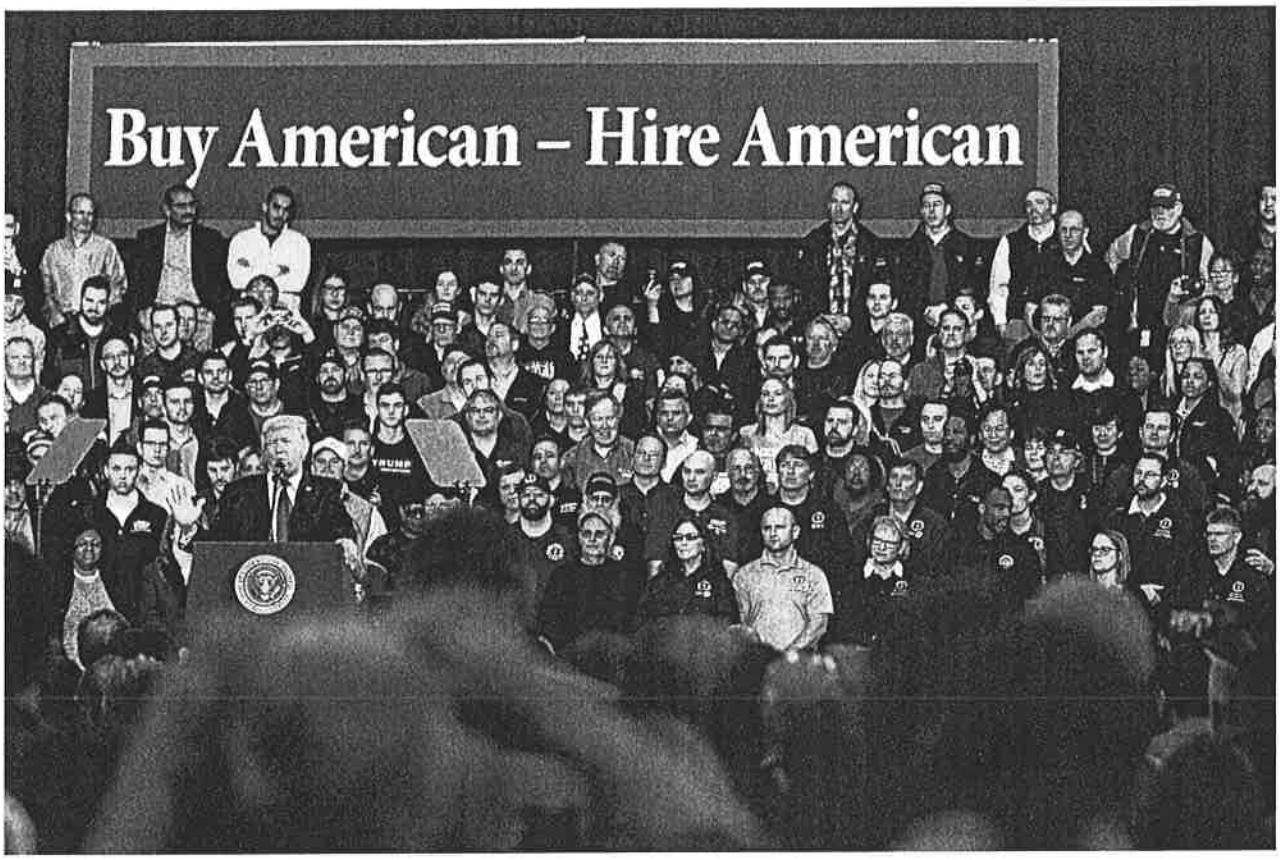
"We're being a prudent business and evaluating all options," said a representative from Canadian Solar on the sidelines of SPI.

"We're preparing for the contingencies and we will react, but you can't take the first step because you don't know what the tariff is going to be," echoed John Dallapiazza, senior sales manager for the Rocky Mountain Region at Trina Solar, in an interview. "You would either be the smartest guy in the room for having reacted before the announcement or the dumbest guy in the room, but it's a coin toss to know which one it would be."

If the ITC finds injury, the next step is to hold a hearing on trade remedies on October 3. Suniva has requested a four-year tariff of 40 cents per watt on imported solar cells and 78 cents per watt floor price on imported modules. The ITC may come up with a different solution, which could also include quotas on solar products from other countries. Free trade countries may or may not receive favorable treatment.

While companies won't know what the proposed remedies are until October, an injury finding on Friday may be enough of a signal for some players to publicize their U.S. manufacturing plans.

"Different companies and different management styles will definitely show themselves," said Rhone Resch, former president and CEO of SEIA.



Trump campaigned on prioritizing U.S. manufacturing, and signed an executive order on the topic in April. (Image credit: The White House)

BYD: "Made in the U.S. may be a good solution"

China-headquartered BYD is among the companies considering a U.S. solar manufacturing plant -- depending on the remedy.

The industry might be able to absorb a small tariff without huge disruption, but Suniva's proposed 78-cent floor price would be "real crazy," said Zhao.

"Then the solar developers have no modules in the next two years in the U.S.," he said.

Some clients have said they would have to suspend projects until the local supply chain is ready, should that level of obstacle arise, he added.

BYD, though, wouldn't stand on the sidelines waiting for prices to come down.

"We are also thinking about putting a factory in the U.S. if the 201 case comes into place," Zhao said. "'Made in U.S.' may be a good solution to try to help our customers here. They have a very long pipeline of solar projects for the next few years, and they cannot really afford to pay the higher cost of modules."

Exact locations are still in discussion, but the company already has a 1,000-person electric bus factory in Lancaster, California, so it could try to expand operations in that area.

Building a module factory would take about one year, Zhao said, whereas a cell factory, which requires more extensive environmental impact compliance, might take two years.

Recent statements from at least one major solar project developer show that there's demand for a domestic manufacturing solution, even if it takes some time to set up. On NextEra Energy Partners' most recent earnings call, management said they don't see manufacturers giving up on the U.S. market.

"We'll see what happens," said James Robo (https://www.pv-tech.org/news/nextera-energy-and-fpl-keep-adding-to-solar-project-pipeline-in-us-despite), CEO, president and chairman of NextEra's parent company Florida Power & Light Company. "Obviously, we're following closely."

"My own view on this is that markets adjust," he continued. "This is a very competitive market out there for manufacturing panels that the panel manufacturers are not going to abandon .... They'll figure out a way to compete. And it may take a little bit but, fundamentally, I'm not worried about the long term implications of whatever happens with the ITC."

Robo's comments suggest there could be a deal in the works. Could NextEra's major module suppliers JinkoSolar or Hanwha Q CELLS -- neither of which would comment on the record at SPI -- be considering a new U.S. facility to avoid trade restrictions? Could Adani's Florida-based team be positioning the company to meet the needs of Florida-based NextEra?

The "5D calculus"

If injury is determined, there's a "5D calculus" that foreign manufacturers will have to work through, said GTM Research solar analyst MJ Shiao. The variables are the type of remedy (i.e. tariff, quota, etc.), the geographic scope (e.g., will free trade agreement countries be exempt?), the severity of the remedy (e.g., how high will a tariff be?), the length of the remedy (e.g., how many years?) and what other suppliers might do.

The type of remedy will determine a lot. For instance, if there are strict caps on how many solar modules can come from other countries, it could bolster the case for U.S. manufacturing. The tariff design will also affect where potential new U.S. factories get built. If a tariff makes importing modules untenable, but doesn't address cells, then suppliers may quickly erect module assembly factories with easy access to international ports.

If the remedy addresses cells and modules, or specifies a certain amount of the finished product that needs to be made in the U.S., foreign manufacturers instead may need to invest in cell production, which is much more resource intensive.

The power and water requirements of such a facility would drive companies to build somewhere that has those resources in relatively cheap and abundant quantities. The Pacific Northwest fits the bill, and parts of the northeast.

The status of free trade partners in the tariffs would dictate other choices. If NAFTA partners escape a tariff, solar producers could flock to Mexico for cheaper labor, easy access to the eastern and western U.S. and proximity to the growing Latin American market.

The challenge doesn't end when construction wraps up. It takes more work to ramp up to efficient, profitable production.

"Operational is one thing; scale and efficiency is another," said Trina's Dallapiazza. "The first modules out will be pricier than what scale can produce."

Delays (https://www.pv-magazine.com/2017/09/05/tesla-begins-production-of-solar-cells-at-buffalo-gigafactory/) at Tesla's highly anticipated solar cell and module manufacturing facility in Buffalo, New York are a testament to how difficult it is to launch such an operation in the U.S. SolarCity officially began construction of the plant in 2014 and anticipated starting production in early 2016. The facility finally produced it first PV cells at the end of August. Production is now expected to begin ramping by the end of the year.

Since the Buffalo plant broke ground, Tesla completed the acquisition of SolarCity, and the company decided to shift from Silevo's "Triex" heterojunction cell technology to partner Panasonic's Heterojunction Intrinsic Thin Film (HIT) solar cell solution. These developments likely caused some of the delay.

An established company that is already planning a to scale up production somewhere else in the world, and could pivot to the U.S. market, might have an easier time.

Meanwhile, at least one foreign manufacturer is already in the midst of setting up U.S. manufacturing facility. In February, China Sunergy, or CSUN, announced plans (http://https://pv-magazine-usa.com/2017/02/14/csun-to-build-400-mw-pv-module-factory-near-sacramento/) to build a 400-megawatt high efficiency PV module factory near Sacramento in response to earlier trade measures. While the plant features fully automatic production lines, it's still expected to create more than 200 local job opportunities.

The timeline issue

For any company looking at U.S. manufacturing as a way to avoid trade penalties, understanding the timeline is key.

"At best, suppliers can speed through the manufacturing setup process within 18-24 months -- but by then, you're halfway through the four-year remedy period," said Shiao, referring to the typical four-year duration of a Section 201 trade case. The president has the authority to extend the remedy for up to eight years, however.

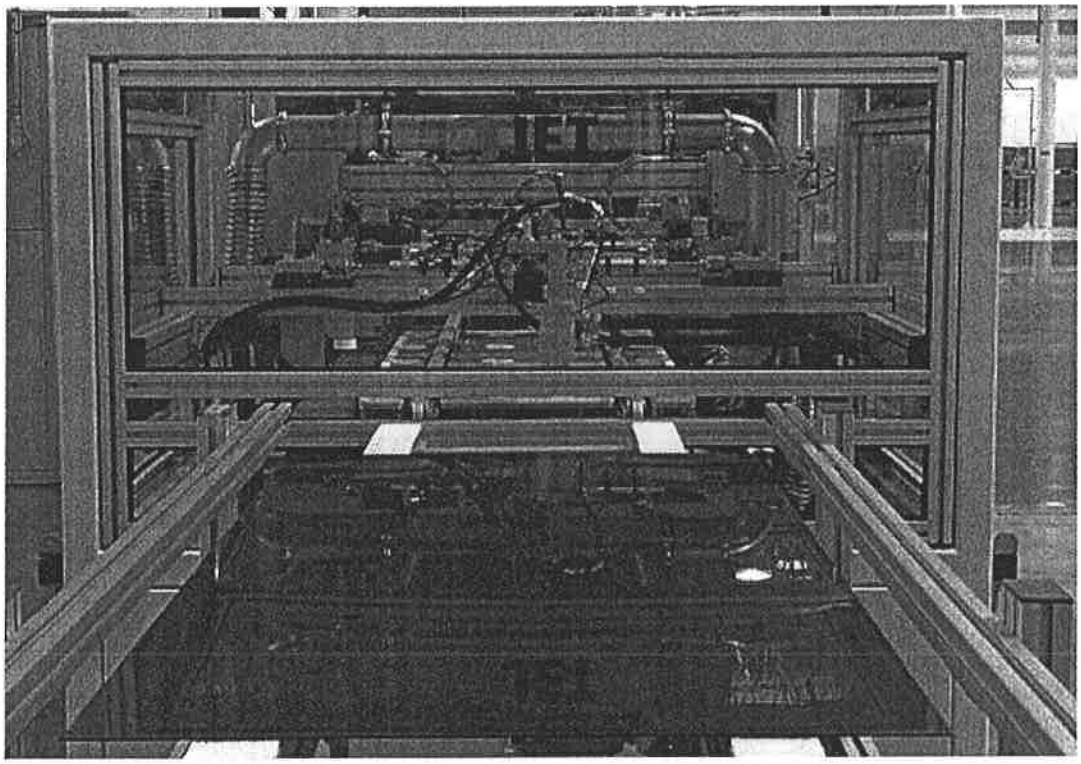
"Worst case is that the supplier makes the investment and a World Trade Organization challenge or a change within the administration pulls the tariffs back before the end of the period," he added.

If President Trump approves a new trade remedy for "injury" from imported solar products, it will likely take effect in January 2018. The solar industry is then expected to file a complaint with the WTO -- which is what opponents did when the American steel industry brought a Section 201 nearly 17 years ago. The WTO could take another two years to rule on the case. And if the Suniva/SolarWorld 201 petition is found to be in conflict with the WTO -- like in the steel case -- the WTO will reject it.

The problem is, this two-and-a-half-year period probably doesn't provide enough runway to make a U.S. facility feasible. A company that invests considerable capital in a U.S. factory, only to find the country re-opened to imports by the time it's finished, would be at a disadvantage compared to others that don't bother.

And then there's the possibility that the Trump administration will choose to reject the WTO decision and keep the trade remedies in place. If that happens, it could spark an all-out trade war as countries start implementing tariffs on U.S. products in retaliation.

"It's difficult to imagine that any supplier makes the plunge [in the U.S. market] until there's a clear recommendation from the ITC and even more importantly, clear guidance from the Trump administration on what it wants," said Shiao.



Thin-film solar manufacturers like Stion and First Solar were not included in Suniva's request for tariffs.

"Buy American" could also be a factor

Despite the risks, the first mover to launch U.S. manufacturing would likely receive an enormous amount of publicity -- and possibly win favor with the Trump administration.

Once the first mover acts, it's likely to validate the tariffs in the eyes of the Trump team -- to the dismay of tens of thousands of U.S. solar workers who would like to see the trade drama simply go away. The problem for solar panel manufacturers is that a PR boost doesn't make opening a factory a wise long-term decision. No doubt some CEOs are going to want more market certainty than the first mover boost can provide.

One way the Trump team might seek to ensure that new tariffs are effective at bringing international manufacturers to the U.S. is to tie the 30 percent solar investment tax credit to the Buy America Act.

"You could easily see in a tax bill an effort to attach the ITC to the Buy American Act to make it more strict," said Resch. In this hypothetical scenario, only panels made in the U.S. would benefit from the federal incentive -- which offers tax breaks for solar projects placed in service before 2023 (https://www.seia.org/research-resources/impacts-solar-investment-tax-credit-extension).

"If you're a Chinese manufacturer, between Solar One and Solar Two (nicknames for anti-dumping tariffs the U.S. previously put in place (http://https://www.greentechmedia.com/articles/read/solarworld-wins-again-big-anti-dumping-tariffs-in-us-china-solar-panel-tra) against China), Section 201, and a Buy American Act provision, it's pretty difficult to see how you can fit into the U.S.," Resch said. The combination of these forces and potentially other protectionist measures the Trump administration puts in place could be sufficient to justify an investment in U.S. manufacturing.

Trump talked a lot about the Buy American Act on the campaign trail and it continues to be a focus of his presidency. He signed the "Buy American, Hire American (https://www.washingtonpost.com/news/post-politics/wp/2017/04/18/trump-signs-buy-american-hire-american-executive-order-promising-to-fight-for-american-workers/?utm_term=.e4eedb4f6195)" executive order in April. Whether or not the administration can get a domestic product requirement for solar panels passed through Congress, though, is another matter.

Another solution: sell thin-film

Suniva claimed it was suffering from cheap solar imports from all over the world, but, curiously, it only requested protection against crystalline silicon products. That means the ITC could set back mainstream silicon pricing by a few years, but leave alternative solar technologies like thin-film untouched.

"Suniva and SolarWorld don't really compete with thin-film, since their bread and butter is mostly commercial and residential, while thin-film is largely procured for utility scale," said Jade Jones, an upstream solar analyst at GTM Research.

This is one of the ironies of this saga: two small-time producers could destabilize the market for the largest utility-scale projects, which they couldn't compete for in the first place (https://www.greentechmedia.com/articles/read/suniva-smackdown-spi-sunrun-solarworld). It's no surprise that several utilities with robust solar pipelines have come out against the trade case

If that happens, thin-film manufacturers who already produce at scale stand to benefit: theoretically, they could sell up to whatever the new minimum price is and keep that margin for themselves. Market leader First Solar is in the best position to expand market share in this scenario, as could Solar Frontier and (American made) Stion.

"Suppliers that have had a presence in the U.S. market will find it easier to access a potential uptick in thin-film demand," Jones said.

As for the silicon manufacturers, they almost certainly wouldn not be able to pivot to thin-film production as a profitable workaround. Doing so would probably require buying a company that has developed the technology.

"Those are completely different technologies," Jones said. "Most manufacturers want to focus on their core manufacturing business. To invest in a unique technology just for the U.S. market seems like pretty expensive gesture."

Julia Pyper

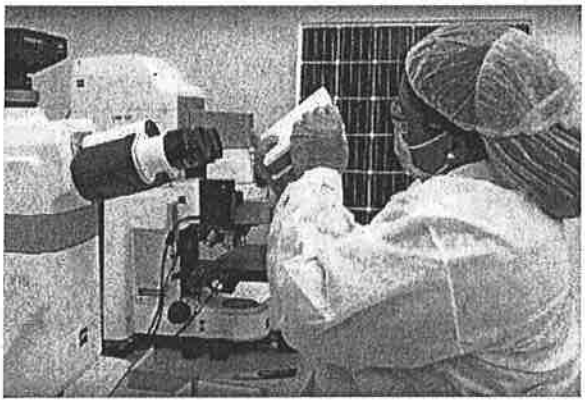
Senior Editor
Greentech Media

Julia Pyper is a Senior Editor at Greentech Media covering clean energy policy, the solar industry, grid edge technologies and electric mobility. She previously reported for E&E Publishing, and has covered clean energy and climate change issues across the U.S. and abroad, including in Haiti, Israel and the Maldives. Julia holds degrees from McGill and Columbia Universities. Find her on Twitter @JMPyper.

EXHIBIT 6

INDUSTRY PERSPECTIVE (/ARTICLES/TYPE/INDUSTRY-PERSPECTIVE)

6 Ways to Encourage American Solar Manufacturing Without Import Duties



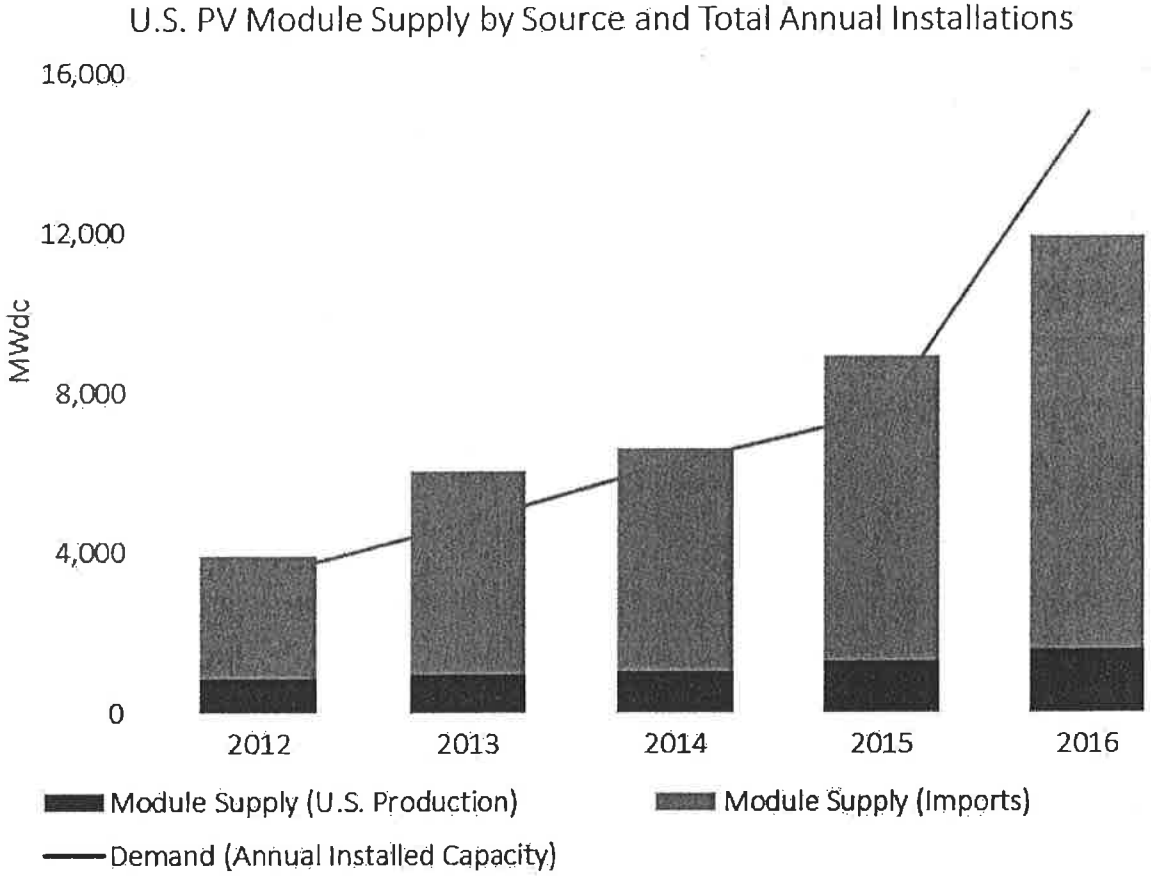
The U.S. needs solar manufacturing. But not through Section 201.

by MJ Shiao and Shayle Kann
September 25, 2017

The verdict is in (http://www.greentechmedia.com/articles/read/solar-trade-case-advances-as-itc-finds-injury): by unanimous ruling, the U.S. International Trade Commission found that increased imports are causing serious harm to U.S. solar cell and module manufacturing.

While domestic deployments of solar have grown nearly eight-fold in the past five years, U.S. manufacturing has fallen behind. Previous trade cases were intended to stabilize pricing and result in new U.S. module capacity. But domestic production still hasn't kept pace with deployments.

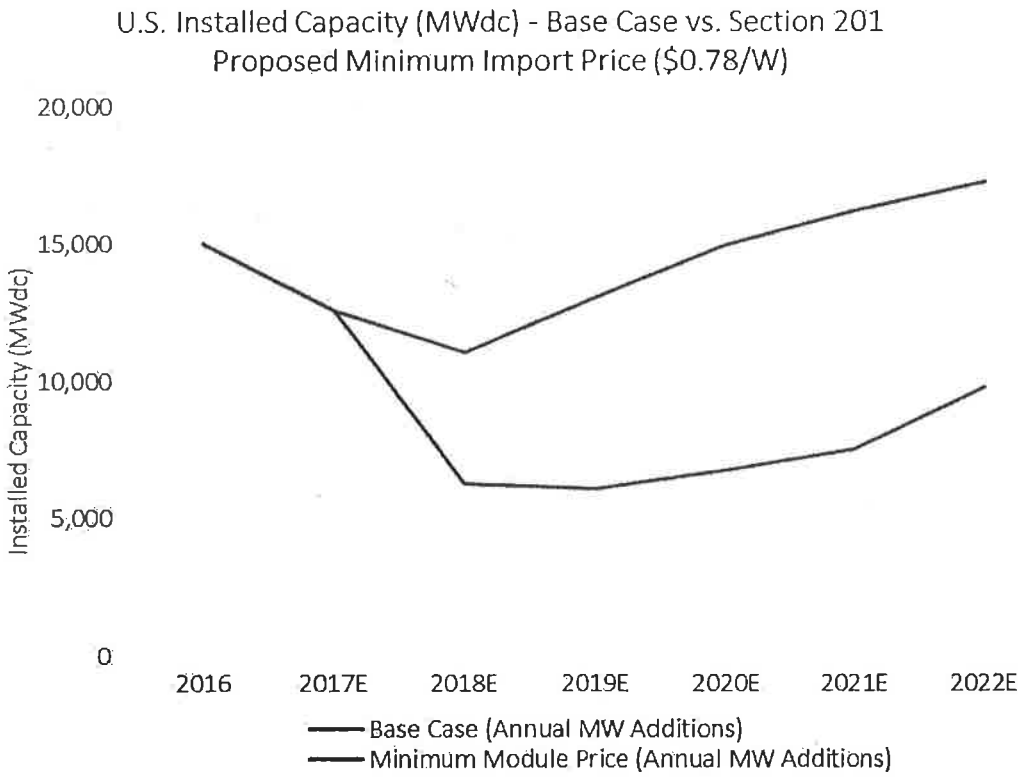
We estimate that 87 percent of U.S. solar installations in 2016 used foreign-produced panels.



Source: GTM Research Solar Supply Chain Service; *GTM Research/SEIA* U.S. Solar Market Insight Q3 2017 (https://www.greentechmedia.com/research/subscription/u-s-solar-market-insight)

This is not an endorsement for Section 201-driven remedies. Far from it. We estimate that the remedies requested by the Section 201 petition would eliminate half (http://www.greentechmedia.com/research/report/us-solar-outlook-under-section-201) of potential solar deployments over their term in exchange for limited new domestic module manufacturing.

But that doesn't mean solutions for domestic upstream solar manufacturing should be abandoned.



Source: GTM Research U.S. Solar Outlook under Section 201 (https://www.greentechmedia.com/research/report/us-solar-outlook-under-section-201)

Why is domestic solar manufacturing important?

Quite simply, manufacturing drives technology innovation. The National Science Foundation estimates that two-thirds (http://www.nsf.gov/news/news_summ.jsp?cntn_id=243082&org=NSF&from=news%5d) of U.S. research and development dollars are spent by manufacturers (over 80 percent of which are from their own funds).

The 50-percent-plus reduction in solar costs over the past five years have been primarily borne by innovations in the supply chain, from low cost polysilicon production to better throughput on materials to improvements in efficiency.

If we believe that solar is a key part of the future of electricity, that the U.S. should be a leader in the clean electricity future, and that technology innovation is key driver toward that realization, then we must increase investment in domestic manufacturing.

It is possible to invest in R&D from the U.S. without domestic manufacturing; in fact, the U.S. boasts two global solar module leaders in SunPower and First Solar, who conduct much R&D in the U.S. while manufacturing most of their product abroad. However, the environment is changing, with more research-heavy competitors and less patient capital.

We also don't dismiss the innovations and contribution from balance-of-systems technologies, which make up much of the remaining U.S. solar manufacturing landscape. But the module represents nearly one-third of PV system costs, and more than half of all hardware costs. No technology leadership strategy for solar can leave the module supply chain behind.

Nor are modules simply a commodity better suited for outsourced manufacturing. Even a simple survey of the Solar Power International floor in Vegas showed that foreign module providers are eager to compete on technologies beyond standard multicrystalline silicon: PERC, half-cut cells, shingled cells, bifacial and even whispers of new challengers in n-type mono.

Upstream process improvements from low-cost mono to diamond wire saw wafering are a commercial reality. The bill of materials is cheaper than ever, and yet suppliers are comfortable offering better and longer warranties. These invisible innovations in the manufacturing process are driving lower cost for foreign manufacturers -- not just cheap labor.

The U.S. doesn't risk losing the lead in solar technology. It needs to catch up.

Why Section 201 is unlikely to reinvigorate domestic manufacturing

Despite all this, levying tariffs or other protectionist measures is misguided. To quote one policymaker: "We should be in a race towards low cost solar, not higher cost solar."

Tariffs that aren't based on preventing illegal dumping (which, to be clear, is not the rationale for a Section 201 petition) fundamentally accept that the U.S. has been left behind. They aim to attack the symptoms and not the root cause, which is a systemic unwillingness to craft clear, long-term policies that support U.S. solar manufacturing.

Research further indicates that benefits to the domestic industry in safeguard cases are short-lived. For example, a 2013 Georgetown University Law study (http://www.law.georgetown.edu/academics/law-

journals/gjil/recent/upload/zsx00113000249.pdf) of three U.S. trade cases petitioned under Section 201 of the Trade Act of 1974 found that "none of the three industries achieved sustained competitiveness after safeguards terminated."

For solar, the timeline for Section 201 creates many risk (http://www.greentechmedia.com/articles/read/foreign-solar-manufacturers-weigh-opening-us-facilities-trade-tariff-looms)s for manufacturers considering investing in U.S. capacity. To reach reasonably competitive costs, manufacturers must build at scale -- at least 500 megawatts if not a true 1 GW facility.

And remember, the petition scope is on PV cell manufacturing at a minimum, a more difficult and expensive production stage than the final module assembly. This requires low triple-digit million-dollar investment, all of which must be recovered within the period of the tariff. That proves tricky.

Section 201 remedies are set for a period of up to four years, with a potential extension up to eight. However, none of the six Section 201 safeguards initiated since the formation of the WTO have lasted for the full four-year term (http://www.law.georgetown.edu/academics/law-journals/gjil/recent/upload/zsx00113000249.pdf). Indeed, international pressure, whether through the WTO or retaliatory tariffs could shorten the duration of any proposed safeguard.

Meanwhile, new equipment (and moving equipment from outside the U.S.) would likely take 12-18 months to reach completion -- and longer to ramp up to full capacity. By the time most new manufacturers are shipping modules in bulk, the tariffs could be nearing sunset.

Any investment in manufacturing would have to believe in long-term competitiveness at scale without tariffs. With potential exclusions for Free Trade Agreement countries in the ITC's injury determination (https://www.usitc.gov/press_room/news_release/2017/er0922ll832.htm), the U.S. would also compete with other geographies that may offer better support or cheaper costs.

But U.S. upstream solar manufacturing isn't impossible (and given the interest, one or two suppliers might pull the trigger regardless). Paper exercises by manufacturers indicate that pricing (with good margins) for domestically-produced multicrystalline modules could be between $0.42 per watt - $0.50 per watt at the gigawatt-scale by 2020. That's compared to projected average volume pricing of $0.25 per watt - $0.34 per watt for Chinese Tier 1 suppliers. And while the gulf seems large, a number of creative alternatives to tariffs could help bridge the gap.

Six alternatives to tariffs

So what could the U.S. do to support real investment in domestic solar manufacturing without sacrificing a strategic market?

1) Support domestic products with a tiered investment tax credit

The investment tax credit has been a clear driver for historical solar growth and will soon step down as solar begins to compete economically with traditional power generation. Instead of stepping the ITC down from 30 percent to 10 percent, keep it at 30 percent for domestic manufacturing.

With turnkey utility PV system EPC prices nearing $0.85 per watt by 2020, a 20 percent difference in the ITC would level the playing field between foreign and domestic manufacturing. And arguably, it could drive up (http://www.greentechmedia.com/articles/read/how-solars-tax-credit-is-a-money-maker) the federal government's returns on the ITC.

2) Expand federal targets for renewable procurement

Government and military renewable purchases can already give preferential treatment to U.S. products through the Buy American Act (BAA) and Trade Agreements Act (TAA) compliant procurement. By expanding federal renewable (specifically solar) procurement targets, the federal government can reduce costs, increase energy independence and support domestic suppliers at the same time.

3) Direct collected duties toward supporting domestic manufacturing

If the Trump administration truly believes in the art of a (good) deal, it should take the duties collected from existing tariffs on Chinese and Taiwanese solar products and equitably redirect them toward new manufacturing investment. In other words, let's build a wall of solar manufacturing and get China to pay for it.

4) Provide loan support or guarantees for U.S. suppliers

The much-maligned DOE loan guarantee program could be another effective tool in two ways. First, the program can offer loan guarantees directly to domestic manufacturing facilities (hopefully conducting heavy diligence to avoid another Solyndra). Second, the program can offer preferential treatment to loan guarantees for power plants that utilize innovative, domestically manufactured technology.

5) Subsidize the solar supply chain

A dated (but still informative) research study by NREL (http://dspace.mit.edu/handle/1721.1/82122) from 2013 indicated that China's advantage in cost of module production primarily came from purchasing power at scale, low-cost regional equipment and material supply.

Indeed, part of the Department of Commerce's rationale to levy existing AD/CVD tariffs on Chinese solar modules (which have been in place since 2012) was predicated on their belief that China's government involvement distorted pricing on key materials like polysilicon and aluminum extrusions.

To beat China at its own game, the U.S. needs to invest in the full bill of materials, not just the primary pieces of the module value chain. Copying from China's text book, low-cost loans, technology development assistance, cheap land and other forms of non-monetary encouragement should go beyond silicon, wafer, cells and modules to encapsulants, coatings, solar glass and other solar materials.

6) Provide assistance for workforce and technology development

One common reason for not bringing manufacturing to the U.S. is the relative scarcity of experienced solar manufacturing engineers. Like the proposal to invest in technology, the U.S. also needs to invest in ideas and people.

While a talent pool of solar production engineers may not seem like much, we always point to the knowledge sharing as a key driver toward pushing crystalline-silicon solar costs down. Indeed, a parallel example for CdTe came just a year after First Solar acquired the IP from GE's failed CdTe effort (PrimeStar) -- efficiencies skyrocketed to parity with standard multicrystalline silicon in the span of a few years.

Proliferation and free movement of solar manufacturing expertise increases the chances of continued innovation that can further drive down solar costs -- and R&D with day-to-day access of operating factories at scale smooths the path of technology from lab to roof.

We can't say for certain that these investments will yield a thriving U.S. solar manufacturing sector for years to come. But if the U.S. hopes to lead solar innovation, an investment that seeks to lower the cost of domestic solar is the better path.

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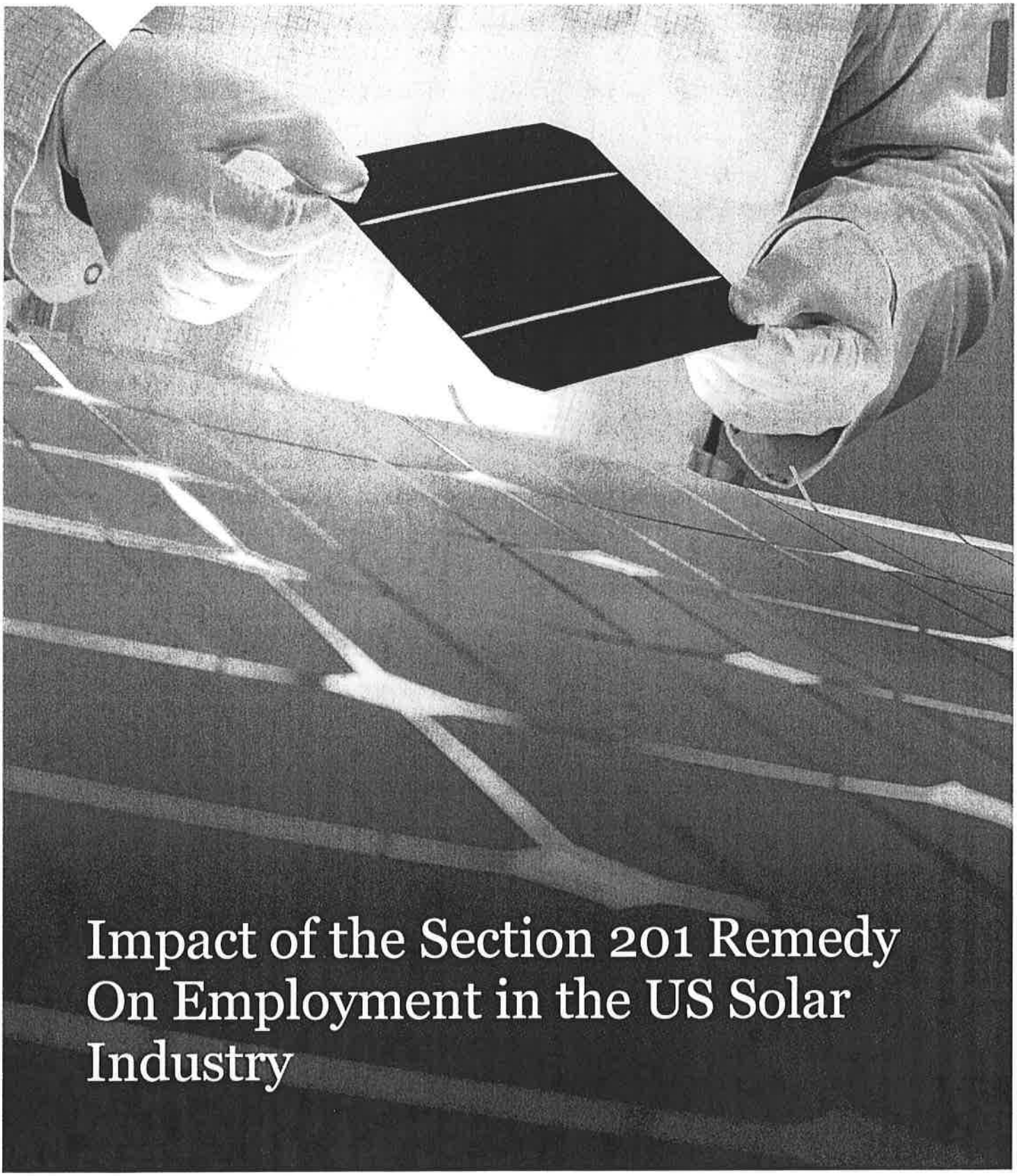
MJ Shiao is the head of Americas Research at GTM. Shayle Kann is the senior vice president at GTM and head of GTM Research.

EXHIBIT 7

MAYER·BROWN

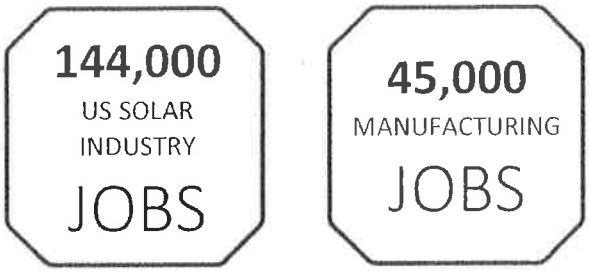
August 2017



Impact of the Section 201 Remedy On Employment in the US Solar Industry

Net Increase of Between at least 115,000 and 144,000 Jobs Across Entire US Solar Industry.

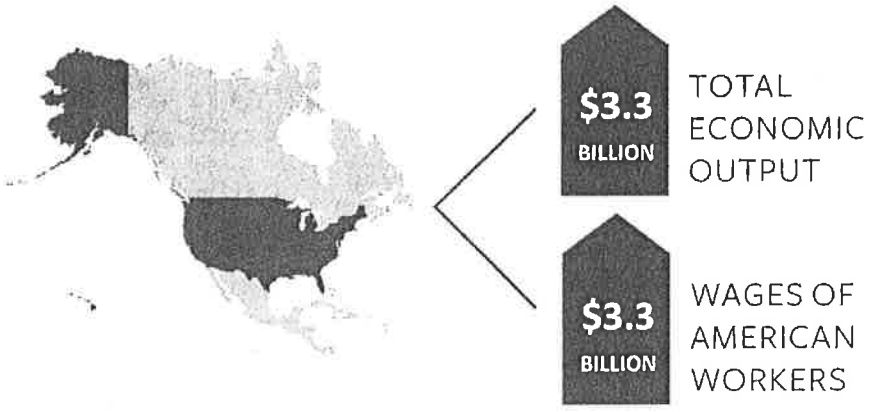
US Solar Manufacturing Employment Could Grow by 45,000 New Jobs



Summary

An affirmative finding by the US International Trade Commission and the imposition of effective remedies in its Section 201 investigation on imports of solar cells and modules would result in a net gain in employment of at least between 114,796 and 144,298 jobs for the US solar industry, including the upstream industries that manufacture critical components used in the production of solar cells and modules over the next five years. This job growth includes as many as 45,000 US manufacturing jobs in the solar cell and module manufacturing segment and the upstream sectors that cell and module manufacturing supports. It also includes an increase of 98,020 US non-manufacturing jobs, including 65,830 US installer jobs.[1]

Estimates that include the restoration of existing manufacturing capacity, plus the likelihood of at least 2 GW of new US production capacity to come online in the US would increase US solar cell and module manufacturing employment by between 37,500 and 45,500 and increase economic output and wages paid by $2.5 billion and $3.3 billion each. Further, the imposition of effective remedies would ensure American companies continue and increase R&D and capital investment in the US, which would generate significant economic benefits that are not captured in the job and economic output estimates noted above.



[1] These estimates differ from analysis released by the Solar Energy Industry Association (SEIA) because of a difference in baselines. SEIA's analysis compared projected jobs without a remedy and without including the impact of lost manufacturing jobs to projected jobs with a remedy imposed. Thus, SEIA's analysis compares two projections with no reference to actual jobs. This analysis uses actual job levels in 2015 as its baseline. 2015 employment data represent the latest data available from the National Solar Jobs Census.

Background

The global surge in low priced imports has caused US Solar cell and module manufacturers to shut down and lay off thousands of Americans from good paying, full time jobs. The surge in imports is the result of massive overcapacity, particularly in Asia and driven first by significant, illegal subsidization of Chinese producers as well as subsequent efforts by Chinese producers to develop manufacturing capacity in third-countries, such as Malaysia, Vietnam and Thailand, as a means of avoiding trade measures imposed to level the playing field for US manufactures and remedy the dumping of subsidized imports from China. This growth in production capacity has resulted in a massive and growing global overcapacity.[2]

The global surge in imports has decimated the US solar manufacturing sector even as demand in the US for solar power has grown significantly. The negative impact on the US solar sector is widespread. As noted by Greentech Media "[T]he brutal year for many businesses: Public solar companies are getting thrashed, module oversupply is causing severe financial pain for manufacturers, and even downstream companies who've benefited from cheaper equipment and growing demand have struggled."[3] Since 2010, installed solar capacity in the United States has grown from 929 MW in 2010 to 14.8 GW in 2016.[4] Yet at the same time, US solar manufacturing jobs and production has been decimated. The strong increase in US demand has been met overwhelmingly by imports. In 2010, the Solar Foundation estimated that there were 24,916 jobs in the solar manufacturing sector.[5] Had the US manufacturing sector captured a proportional share of the increase in demand, then US employment in the solar manufacturing sector should have nearly doubled to 40,418 jobs in 2016. Instead, employment in the US solar manufacturing sector has been slashed as the surge in low-priced imports has filled demand.

Imposition of effective remedies under the Section 201 investigation can restore the US market to an economically rational state, allow US manufacturers to compete on a level playing field against imports and restore and increase American manufacturing jobs, while continuing to grow jobs in the downstream installation segment, and related financing, development and complementary manufacturing segments.

In order to estimate the total increase in jobs and economic benefits from the imposition of effective remedies this analysis starts with a review of the impact of the remedies proposed in the petition on market prices and installations. This is then supplemented with an analysis on the upstream industries that support the US solar manufacturing sector using the Regional Input-Output Modeling System (RIMS II), developed and maintained by the Bureau of Economic Analysis (BEA), Department of Commerce.

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2 See, PV Tech, "Global solar PV manufacturing capacity expansion plans rebound in Q1" (Apr. 12, 2017).

3 A Journey to the Center of the Solar Industry, Podcast by Stephen Lacey, June 7, 2017, GTM, available at https://www.greentechmedia.com/articles/read/a-journey-through-the-solar-industry.

4 2016 National Solar Jobs Census, The Solar Foundation, p. 7, available at http://www.thesolarfoundation.org/national/

5 2010 National Solar Jobs Census, The Solar Foundation, p 11, available at http://www.thesolarfoundation.org/national/

Estimate of Solar Installations and Non-Manufacturing Jobs

GTM Research has estimated that as a result of the remedies proposed in the petition market prices for installed solar systems would stabilize at late-2015/early-2016 levels and installed US solar capacity would increase by at least 36 GW over the 2018 to 2022 time period. The GTM analysis suffers from significant flaws, fails to account for the impact of any new US manufacturing growth and likely significantly understates the rate of growth in installed capacity that would occur if an effective remedy is imposed.[6] However, solely for the purposes of this analysis we have incorporated GTM's forecast knowing that this forecast likely underestimates the increase in installed capacity and therefore employment levels in the non-manufacturing segments of the industry.

GTM's projection of an additional 36 GW of new installed capacity represents an increase of 44 percent in installed capacity compared to the prior five year period (2011-15) during which approximately 25 GW of capacity was added.[7] Between 2011 and 2015, non-manufacturing jobs in the solar industry increased by 102,002 or 134 percent.[8] Of this amount, 67,428 of the new jobs were installer jobs and installer jobs increased by approximately 128 percent. Thus, an increase in installed US capacity of approximately 25 GW is associated with an increase in non-manufacturing employment in the US solar sector of approximately 100,000 jobs. Applying a similar trend analysis to the projected increase in capacity of 36 GW over the five year period 2018-22 results in an increase of 98,020 new non-manufacturing jobs over 2015 levels.[9] Of these jobs 65,830 are estimated to be installer jobs.[10]

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6 US Solar Outlook Under Section 201: The Trade Case's Impact on US Solar Demand, GTM Research, June 2017, at Figure 1.2 p. 5, available at https://www.greentechmedia.com/research/report/us-solar-outlook-under-section-201. For example, GTM Research's worst case estimate that an additional 25 GW of new capacity would be installed between 2018 and 2022 is based on an error in its methodology where it double-counted the impact of the REMEDY PROPOSED IN THE 201 PETITION. Further, it should be noted that even GTM's projected increase of 36 GW in installed capacity is lower than prior GTM analysis. Application of 2015 price levels to prior GTM forecasts of installations result in a projected increase of installed capacity of over 37 GW.

7 2015 National Solar Jobs Census, The Solar Foundation, p. 20, available at http://www.thesolarfoundation.org/wp-content/uploads/2016/10/TSF-2015-National-Solar-Jobs-Census.pdf.

8 Ibid at 11.

9 Calculation applies ratio of the projected increase in installed capacity to the increase in capacity 2015 times the number of non-manufacturing jobs in 2015 (or (2022 net installation/2015 net installations) * 2015 jobs). There are a number of alternative methods that could be used to estimate the rate of growth in non-manufacturing jobs over the 2018-22 period. The method used here applies conservative assumptions about the relationship between installed capacity and non-manufacturing job growth. Under this method there is assumed to be no increase in non-manufacturing jobs until projected installations increase at a greater rate than 2015 installations. 2015 installation levels represent record level installations. Alternative methods, such as simply extrapolating out historical rates of growth, would result in even larger increases in non-manufacturing employment levels. Regardless of which method is applied, in every instance, non-manufacturing employment increases relative to 2015 levels.

10 Calculation applies ratio of installer jobs to total non-manufacturing jobs for the 2011-15 period to the total of new non-manufacturing jobs projected for the 2018-22 period.

Estimate of US Cell and Module Manufacturing Jobs

Solar cell and module manufacturing are high value-added operations that pay high-wages to full-time employees. Solar cell and module manufacturing also support high-wage, full-time jobs in the upstream industries that support cell and module manufacturing. These sectors, including aluminum extrusions, silicon crystals, and electronic components, would benefit from the increased demand that a restored US solar manufacturing sector would generate. This results in the cell and module manufacturing sector having a high multiplier effect or the measure of the sector's impact on the broader US economy. In comparison, as noted by the Solar Foundation, installer jobs "represent the end of the solar value chain" and as a result have a much lower multiplier effect than the cell and module manufacturing sector.[11]

, it is appropriate to rely upon the methodology developed by the Bureau of Economic Analysis (BEA) of the US Department of Commerce in estimating the impact on the US economy of a restoration of US cell and module manufacturing. Specifically, the analysis uses BEA's Regional Input-Output Modeling system (RIMS II) methodology and multipliers.[12]

As a first step in the analysis, the model estimates the economic impact of restoration to full operating capacity and production of existing US cell and module production capacity, specifically 970 MW of US cell manufacturing capacity and 865 MW of US module manufacturing capacity.[13] The analysis assumes total cell production costs of between $0.22 and $0.33 per watt and module production costs of between $0.22 and $0.24 per watt.[14] BEA multipliers were used to calculate the additional economic impact that the increased demand generated by the operation of these production facilities would have on the broader US economy.[15] Thus, the BEA models report both the direct economic impact and the indirect economic impact that is derived from demand for the goods and services necessary to support the direct economic activity. The industry multipliers were taken from the BEA RIMS database.[16] In very short order, a remedy that at a minimum restores existing US solar cell and module production capacity would result in an increase of at least between 12,429 to 16,141 manufacturing jobs;[17] and as detailed below, projections show at least 2 GW of new US production capacity, and thus US solar cell and module manufacturing employment would increase by between 37,500 and 45,500.

In addition to restoration of existing capacity, it is highly likely that imposition of an effective remedy and stabilization of price levels in the US would result in substantial new investment in U. S. solar cell and module manufacturing capacity. This investment in new production capacity would create significant new US

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[11] 2016 National Solar Jobs Census, The Solar Foundation, p. 17, available at http://www.thesolarfoundation.org/national/.

[12] See generally https://blog.bea.gov/tag/rims-ii/. Model specifications and applications were derived from BEA publications: http://www.bea.gov/scb/pdf/regional/perinc/meth/rims2.pdf and http://bea.gov/regional/pdf/rims/RIMSII_User_Guide.pdf.

[13] These estimates are based on restoration of full capacity and production of Suniva facilities in Georgia and Michigan and SolarWorld facilities in Oregon as well as an estimate that an additional 50 MW of idled cell production and 115 MW of idled module production across the US are restored, or approximately 50 percent of idled capacity.

[14] These costs estimates are based on surveys of US and foreign producers, market analysis services, and US government research publications.

[15] Specifically, the BEA multipliers used are taken from the NAICS sectors 334413 and 33131B. The analysis incorporates BEA Type II multipliers as the analysis assumes the majority of the wages and benefits paid are consumed in the region.

[16] See BEA RIMS II Online Order and Delivery system, available at https://www.bea.gov/regional/rims/rimsii/

[17] These estimates assume only existing, but idled capacity is operating at full capacity and even then only a limited percentage of idled capacity is restarted.

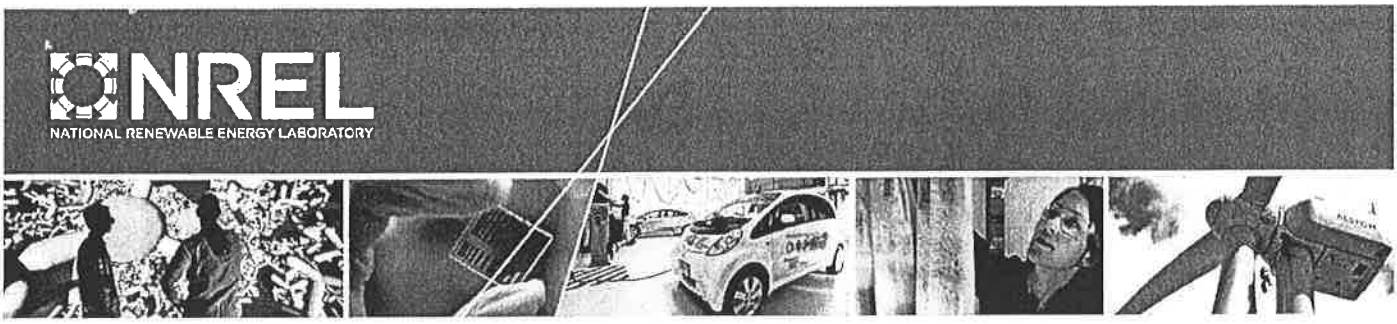
manufacturing employment. Under an assumption that effective remedies induce sufficient additional investment to increase US cell production capacity to 3 GW and US module capacity to 2.6 GW, US cell and module manufacturing employment would increase by between 37,515 and 45,491 restored and new manufacturing jobs. Economic output and wages paid in the cell and module manufacturing sectors would increase by between $2.5 and $3.3 billion each.

Conclusion

The significant increase in installed US solar capacity, the restoration of US manufacturing and the increase in jobs and US economic output should put to rest any concerns that the 201 petition will damage the US solar market.[18] Indeed, the analysis prepared by GTM Research shows that significant increases in installed capacity would continue and non-manufacturing job growth would continue at a rapid pace, growing by over 80 percent. In addition, US cell and module manufacturing production and employment would be restored which would also benefit manufacturing jobs in the supporting upstream sectors. Therefore, the impact of the imposition effective remedies under Section 201 would restore thousands of US manufacturing jobs and would result in a net increase in US jobs, wages, and economic output.

[18] http://www.seia.org/news/seia-statement-solarworld-joining-section-201-trade-case

EXHIBIT 8



U.S. Solar Photovoltaic System Cost Benchmark: Q1 2017

Ran Fu, David Feldman, Robert Margolis,
Mike Woodhouse, and Kristen Ardani
National Renewable Energy Laboratory

NREL is a national laboratory of the U.S. Department of Energy
Office of Energy Efficiency & Renewable Energy
Operated by the Alliance for Sustainable Energy, LLC

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Technical Report
NREL/TP-6A20-68925
September 2017

Contract No. DE-AC36-08GO28308

3 Residential PV Model

This section describes our residential model's structure, inputs, and assumptions (Section 3.1), output (Section 3.2), and differences between modeled output and reported costs (Section 3.3).

3.1 Residential Model Structure, Inputs, and Assumptions

We model a 5.7-kW residential rooftop system using 60-cell, multicrystalline, 16.2%-efficient modules from a Tier 1 supplier and a standard flush mount, pitched-roof racking system. Figure 13 presents the cost drivers and assumptions, cost categories, inputs, and outputs of the model. Table 6 presents modeling inputs and assumptions in detail.

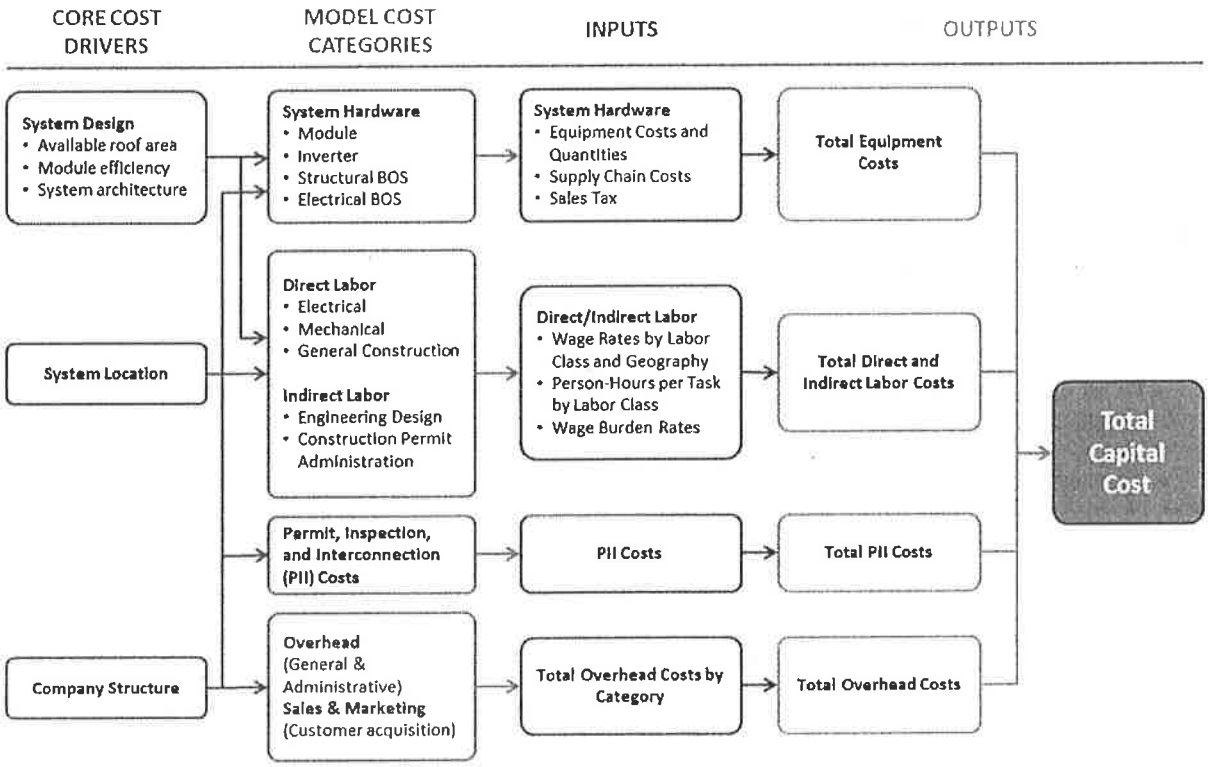

Figure 13. Residential PV: model structure

4 Commercial PV Model

This section describes our commercial model's structure, inputs, and assumptions (Section 4.1) and output (Section 4.2).

4.1 Commercial Model Structure, Inputs, and Assumptions

We model a 200-kW, 1,000 volts DC (Vdc), commercial-scale flat-roof system using multicrystalline 17.5%-efficient modules from a Tier 1 supplier, three-phase string inverters, and a ballasted racking solution on a membrane roof. A penetrating PV mounting system can have higher energy yield (kWh per kW) owing to wider tilt-angle range allowance. However, we do not model this system type, because its market share has declined owing to additional required flashing and sealing work, roof warranty issues, and the relative difficulty of replacing such a system in the future. Figure 19 presents a schematic of our commercial-scale system cost model. Table 8 presents the detailed modeling inputs and assumptions. We separate our cost estimate into EPC and project-development functions. Although some firms engage in both activities in an integrated manner, and potentially achieve lower cost and pricing by reducing the total margin across functions, we believe the distinction can help separate and highlight the specific cost trends and drivers associated with each function.

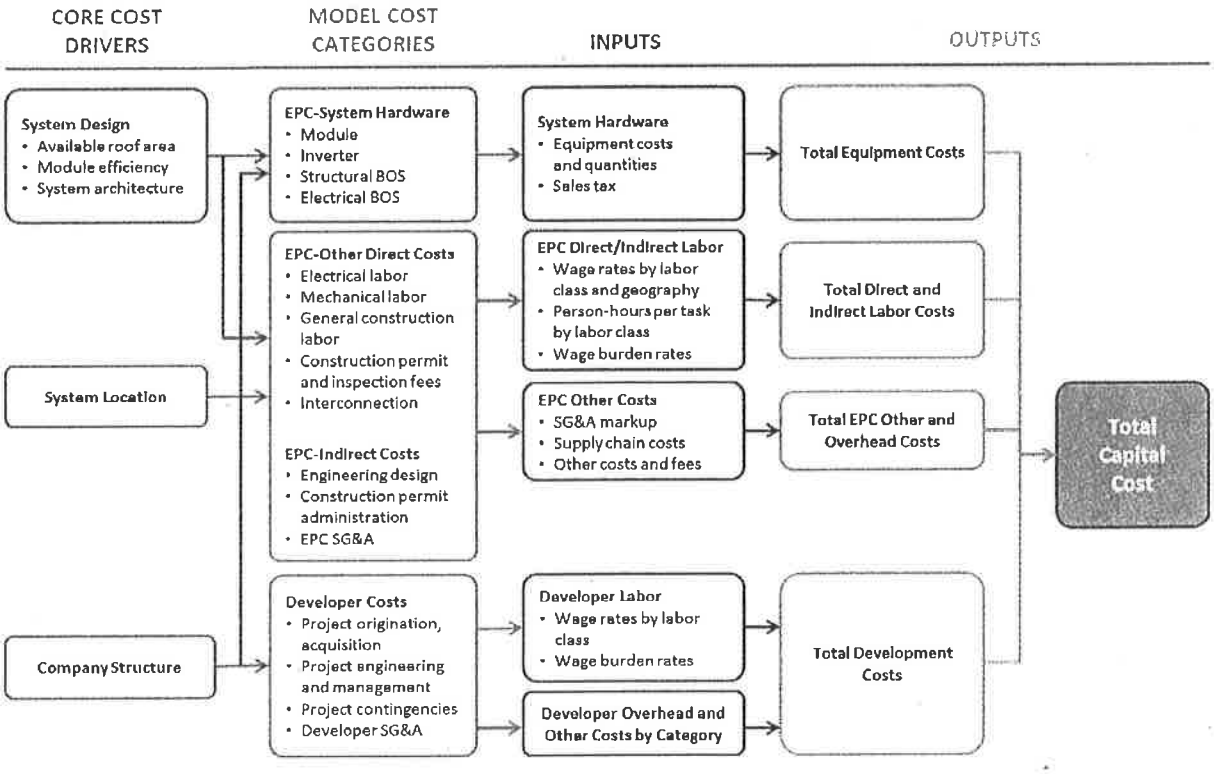

Figure 19. Commercial PV: model structure

4.2 Commercial Model Output

Figure 20 presents the U.S. national benchmark from our commercial model. As in the residential model, the national benchmark represents an average weighted by 2016 state-installed capacities. We model different system sizes because of the wide scope of the "commercial" sector, which comprises a diverse customer base occupying a variety of building sizes. Economies of scale—driven by hardware, labor, and related markups—are evident here. As system sizes increase, the per-watt cost to build them decreases. This holds even as we assume that a typical developer has 10 MW of system development and installation per year, and therefore has overhead on this 10 MW total capacity that does not vary for different system sizes. When a developer installs more capacity annually, the developer's overhead per watt in each system declines (shown in Figure 18 in our Q1 2015 benchmark report, Chung et al. 2015).

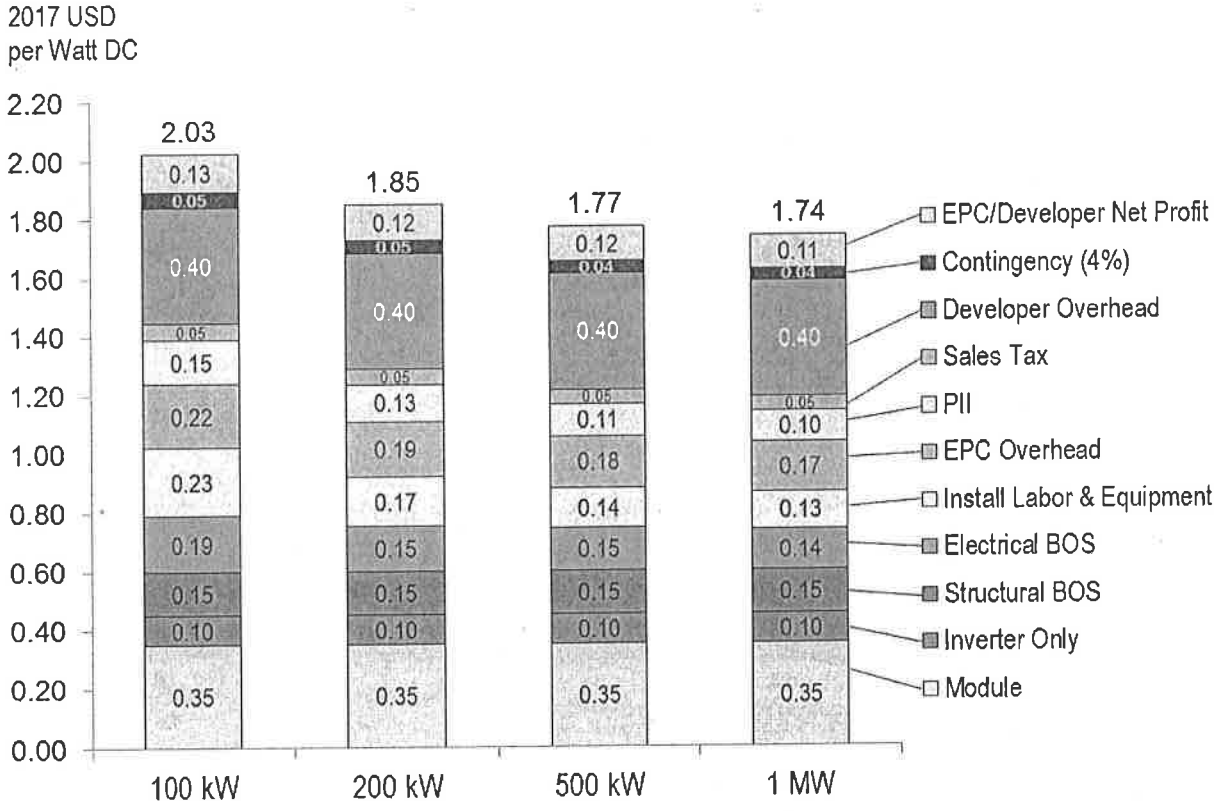

Figure 20. Q1 2017 U.S. benchmark: commercial system cost (2017 USD/Wdc)

The PII cost was higher in Q1 2017 than in Q1 2016, because the low-hanging fruit—such as ideal commercial building rooftops—have already been picked by Q1 2017. Thus, the associated PII time and fees were higher in Q1 2017 for commercial projects with more PII obstacles. Also, the higher net profit in Q1 2017—7%, compared with 2% in Q1 2016—indicates that the rapid module price reduction in 2016 enabled EPC firms and developers to retain a higher profit and still maintain a competitive project cost (NREL 2017).

5 Utility-Scale PV Model

This section describes our utility-scale model's structure, inputs, and assumptions (Section 5.1) and output (Section 5.2).

5.1 Utility-Scale Model Structure, Inputs, and Assumptions

We model a 100-MW, 1,000-Vdc utility-scale system using 72-cell, multicrystalline 17.5%-efficient modules from a Tier 1 supplier and three-phase central inverters. We model both fixed-tilt and one-axis tracking on ground-mounted racking systems using driven-pile foundations. In addition, we separate our cost estimate into EPC and project-development functions. Although some firms engage in both activities in an integrated manner, we believe the distinction can help separate and highlight the specific cost trends and drivers associated with each function.

Figure 24 presents a schematic of our utility-scale system cost model, and Table 10 details its assumptions and inputs.

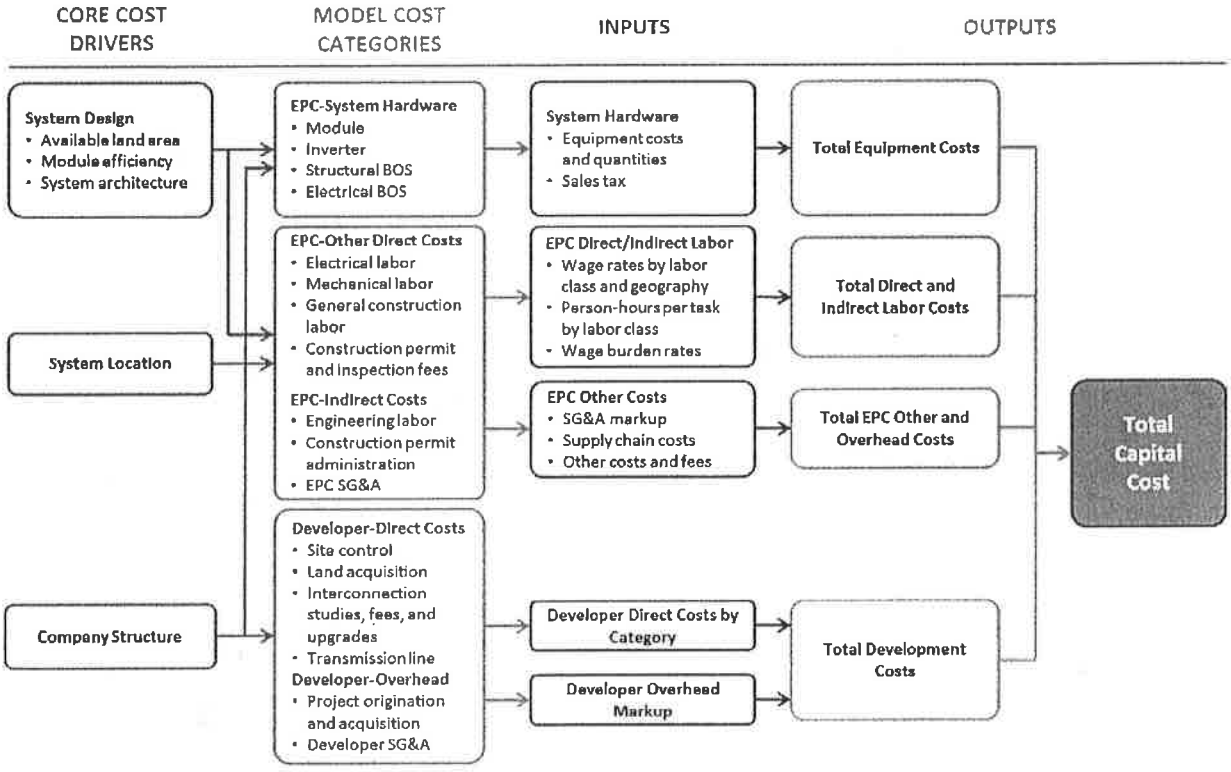

Figure 24. Utility-scale PV: model structure

Although EPC contractors and developers tend to employ low-cost, non-union labor (based on data from BLS 2017) for PV system construction when possible, union labor is sometimes mandated. Construction trade unions may negotiate with the local jurisdiction and EPC contractor/developer during the public review period of the permitting process. Figure 26 shows 2016 utility-scale PV capacity installed (GTM Research and SEIA 2017) and the proportion of unionized labor in each state (BLS 2017). The unionized labor number represents the percentage of employed workers in each state's entire construction industry who are union members. In our utility-scale model, both non-union and union labor rates are considered (Figure 27).

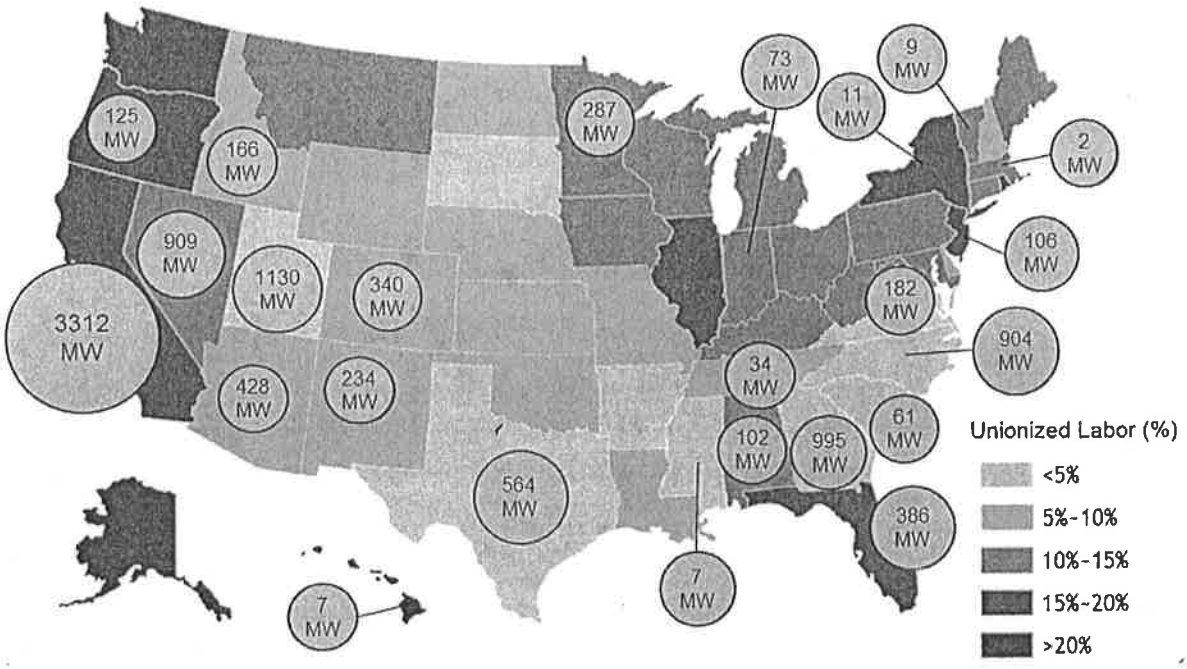

Figure 26. Utility-scale PV: 2016 capacity installed and percentage of unionized labor by state (BLS 2017; GTM Research and SEIA 2017)

5.2 Utility-Scale Model Output

Figure 27 presents the regional EPC benchmark from our utility-scale model, and Figure 28 presents the U.S. national benchmark (EPC + developer) for fixed-tilt and one-axis tracker systems, using non-union labor. In Figure 28, note the following:

1. The national benchmark applies an average weighted by 2016 installed capacities.
2. Non-union labor is used.
3. Economies of scale—driven by BOS, labor, related markups, and development cost—are demonstrated.

As in the commercial PV sector, the 7% net profit in Q1 2017 is higher than the 2% in Q1 2016, because the rapid module price reduction in 2016 enabled EPC firms and developers to retain a higher profit and still keep a competitive project cost bid.

Table 12. Comparison of Q1 2016 and Q1 2017 PV System Cost Benchmarks

Sector	Residential PV	Commercial PV	Utility-Scale PV, Fixed-Tilt
Q1 2016 Benchmarks in 2016 USD/Wdc	$2.93	$2.13	$1.42
Q1 2016 Benchmarks in 2017 USD/Wdc	$2.98	$2.17	$1.45
Q1 2017 Benchmarks in 2017 USD/Wdc	$2.80	$1.85	$1.03
Drivers of Cost Decrease	• Lower module price • Lower inverter price • Higher module efficiency • Lower electrical BOS commodity price • Higher small installer market share • Lower sales & marketing costs • Lower overhead (general & administrative)	• Lower module price • Lower inverter price • Higher module efficiency • Smaller developer team	• Lower module price • Lower inverter price • Higher module efficiency
Drivers of Cost Increase	• Higher labor wages • Higher advanced inverter adoption • More BOS components for rapid shutdown • Higher supply-chain costs	• Higher labor wages • Higher PII costs • Higher net profit	• Higher labor wages • Higher net profit

EXHIBIT 9

September 5, 2017

Policy Update

Total Eclipse: Previewing Solar 201 Trade-Case Options

Summary

The Solar 201 trade case could have dire consequences for the international solar industry, but we believe that expectations for an outcome close to the Suniva request (a $0.78 minimum price and a $0.40 tariff) are too negative. Rather, we see a negotiated middle ground as the most likely outcome, which is acceptable, even if suboptimal, for the importers. Moreover, we emphasize that there is a not insignificant chance that the ITC does not find sufficient harm, essentially ending the risk in September. The Solar Power International Conference kicks off on September 10, and we expect greater color on the case to inform investor sentiment ahead of the ITC's decision.

Key Points

- **Next step: serious harm probable, but not certain.** On September 22, the ITC is scheduled to rule on whether or not the industry suffered serious harm from imports, either escalating the case to the remedy phase or ending it. There appears to be a roughly 20%–30% likelihood that the ITC will not find sufficient harm, but all observers emphasize the lack of visibility into the ITC's decision. Petitions under Section 201 of the Trade Act of 1974 protect domestic manufacturing from harm, as opposed to market interference. The ITC will evaluate if the injury is "serious" and if increased imports are a "substantial cause" that is important and not less than any other cause. The ITC describes 201 as a "more difficult" standard than traditional AD/CVD cases, but with a faster turnaround.
- **Remedy, Part 1: tools and procedures.** The ITC has a number of tools in the remedy phase, including tariffs (import fee), quotas (import limits), and tariff-rate quotas (fees levied after a certain volume of imports). The ITC would hold a hearing on remedies in October and issue recommendations in November. If the President accepts the ITC recommendation, remedies become effective in January. However, under Section 201, the President has broad latitude to set remedies, which would go into effect in April. (See page 2.) Petitioners asked for a tariff of $0.40 and a minimum import price of $0.78 (including the tariff), phasing down over four years. The ITC has never issued a minimum price in a 201 case, and a tariff-rate quota may be more likely. The remedies would apply to all countries, although free trade agreement nations can seek differentiated treatment.
- **Remedy, Part 2: negotiation and the Trump wild card.** We see a negotiated settlement, or middle ground remedy, as the most likely outcome. Sending the case to the President to exercise unilateral discretion would present significant risks, both to foreign producers and to the domestic solar industry. Both sides must be concerned that the case could become a pawn in the President's larger agenda, vis-à-vis Chinese manufacturing or fossil fuels. The rapid personnel turnover and shifting postures offer additional incentives for a negotiation; petitioners must be concerned about the durability of a remedy, as litigation has stalled some previous efforts. Therefore, we would expect an ITC injury finding to set off a race to negotiate a settlement, which could incentivize investment in domestic manufacturing by the legacy players and/or by the foreign producers.
- **Solar sector impact.** We expect solar stocks to react negatively, initially, if the ITC finds harm. In the worst-case scenario (tariff/minimum price), we estimate utility-scale system costs would essentially return to 2016 levels, trimming demand. (See page 8.) More likely: A compromise might make some projects uneconomical, without causing demand to fall precipitously, as some investors fear. We believe the impact would be felt most acutely by the leading foreign panel OEMs that are largely Chinese; but we expect all solar stocks to react negatively, including upstream, downstream, and/or installers/developers. Finally, because it has some domestic manufacturing and thin film, First Solar (FSLR) should be one of the least affected.

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Summary

On April 26, 2017, privately held, Georgia-based Suniva filed a petition with the U.S. International Trade Commission (ITC) asking the agency to initiate a Section 201 investigation under the Trade Act of 1974 and to levy trade restrictions on imported solar cells and modules for four years. In doing so, Suniva also asked for a line of credit in its bankruptcy proceedings in order to prosecute the trade case, citing the 201 case as "of paramount importance in preserving (and enhancing) the value" of its estate. Section 201 provides an opportunity to engage a trade investigation similar to anti-dumping (AD) and countervailing duties (CVD) cases, but is meant to protect domestic manufacturing from harm, as opposed to rectifying market interference. Section 201 investigations have shorter turnarounds, wider ramifications, and a higher bar. Section 201 allows an affirmative injury finding to be remedied through actions against any country. In this case, an affirmative finding could be applied beyond the Chinese and Taiwanese duties of the past and could be targeted towards other Southeast Asian nations, and more that have been singled out as work-around countries for Chinese producers.

If the ITC finds sufficient harm to domestic manufacturing and moves to the remedy phase, the law gives the President broad authority to apply tariffs, quotas, or a combination of both. If chosen, a remedy could become effective by January 2018, although April 2018 seems more likely. Additionally, timing in trade cases has been known to slip; a negotiated settlement and/or WTO intervention are possible, even after a decision has been reached.

The following dates represent important catalysts in the case (according to former SEIA President Rhone Resch: "Business Strategies for Managing the Section 201 Solar Trade Battle," *Greentech Media*, Aug. 14, 2017):

- **5/23/17:** ITC initiated Section 201 investigation.
- **8/8/17:** Deadline for filing pre-hearing briefs for the case.
- **8/15/17:** ITC held hearing; and, although the bulk of the commentary came from opponents of the petition, from across the political spectrum, there appeared to be little indication as to which way the Commission was leaning.
- **9/22/17:** ITC scheduled to rule on whether the industry suffered serious harm from imports, either escalating the case to the remedy phase or ending it.
- **10/3/17:** If ITC finds sufficient harm and moves to next phase, it will hold a hearing on remedies.
- **11/13/17:** ITC recommendations to President.
- **1/12/18:** President decides on remedy, with broad discretion to adjust or ignore.
- **1/27/18:** If POTUS accepts ITC recommendation, remedies become effective
- **April 2018:** Effective date if the President chooses a remedy different from ITC, or if there are separate agreements with individual countries

Section 201

Section 201 is a safeguard mechanism. Section 201 is the most frequently applied safeguard provision and is designed to give domestic industry the opportunity to remain competitive; 26 of 73 Section 201 investigations initiated since 1975 have led to the implementation of trade remedies. The remedy provided is generally an additional import duty, an import quota, or a combination of both, though generally temporary. Presidential action is required in order for remedies to be put into effect.

President Trump's March 2017 Trade Policy Agenda identified Section 201 as a tool to enforce trade laws. The Trump Administration's trade agenda report, published in March 2017, specifically mentioned the use of Section 201 as a mechanism against foreign governments that violate U.S. trade law, saying: "The President may impose relief if increasing imports are a substantial cause of serious injury to a domestic industry. This 'safeguard' provision, used most recently by President

George W. Bush in response to a harmful surge of steel imports, can be a vital tool for industries needing temporary relief from imports to become more competitive. USTR has the authority to ask for a safeguard investigation in the appropriate circumstances."

Injury phase: Section 201 cases set a higher standard, but have a faster turnaround than traditional trade cases. Section 201 petitions to the ITC require that Suniva show "the injury or threatened injury be 'serious' and that the increased imports must be a 'substantial cause' (important and not less than any other cause) of the serious injury or threat of serious injury." The petitions do not require a finding of unfair trade practices, as in traditional anti-dumping (AD) and countervailing duty (CVD) cases; but the "serious" nature and the "substantial cause" described by the ITC make it "more difficult" than traditional AD/CVD cases. (For more on AD/CVD cases, please see our notes: "Department of Commerce Announces Final Determination in Anti-Dumping and Countervailing Duties Investigation" and "RINsanity: Biodiesel Trade-Case Preview and Implications for Biofuel/RIN Market.") Nevertheless, it provides a short turnaround, compared to larger AD/CVD investigations. The ITC must make its injury determination within 120 days, unless the case is extraordinarily complicated, in which case it may take up to 30 additional days. If the ITC finds affirmative harm, it provides the President with one or more remedy recommendations. The ITC's report must be submitted to the President within 180 days of the petition, or within 240 days under critical circumstances.

Remedy phase: President has wide latitude in imposing trade remedies. If the ITC finds sufficient harm and submits remedy recommendations to the White House, the President has 60 days to act. Remedies include minimum import prices, tariffs, quotas, or a combination of all. The President may:

- implement the ITC's recommendations;
- modify the ITC recommendations or implement other forms of remedy; or
- take no action due to U.S. economic or national security interests.

All countries that import cells and modules are affected, but treatment differs. It is important to note that Section 201 remedies affect all countries. However, NAFTA members get a separate assessment; and any country can seek to negotiate differentiated treatment, such as higher quotas or lower tariffs, especially free trade agreement countries (such as Korea, Singapore, Mexico, and Canada, in the consideration of the Suniva case). In the case of the last Section 201 remedies for steel in 2002, the United States offered to hold consultations with exporting countries with substantial interest in the U.S. market. WTO provisions require "safeguard measures" (such as Section 201):

- be time-limited;
- be imposed only when imports are found to cause or threaten serious injury;
- be applied on a non-selective basis; and
- be progressively liberalized while in effect.

Also, when imposing safeguard trade remedies, a country is expected to maintain a "substantially equivalent" level of concessions between it and the exporting countries.

Suniva Section 201 Case

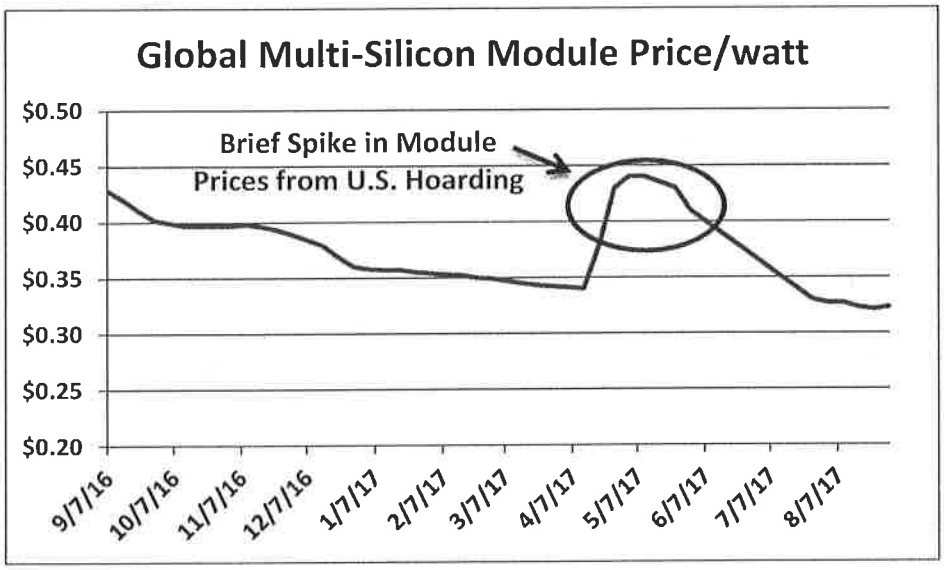
Background and Options

Thanks, Suniva! Inventory hoarding and U.S. module price spike. When Suniva started the trade complaint on April 26, it had a domino effect that continues to have implications on the sector today. Suniva is asking for a minimum import price of $0.78 per watt for modules and $0.40 for cells. The International Trade Commission (ITC) took on the case, and SolarWorld, following its own insolvency filing, joined the complaint. The petition calls for "global safeguard relief" from imports of crystalline silicon solar PV cells and modules, which it says have driven the company to bankruptcy. Note that the complaint specifically calls out crystalline modules, so First Solar's thin film modules would be excluded.

If the ITC issues an affirmative injury determination in the proceeding, it will recommend to the President that he impose crystalline silicon cell and module import restraints that would, in the agency's view, offset the injury experienced by the industry. According to the Solar Energy Industry Association (SEIA), about 2,000 people work in the cell and module manufacturing industry in the U.S., and over 200,000 work in tangential areas, largely in installation. *Greentech Media*, a third-party researcher, indicated that about 50% of estimated demand over the next several years could disappear if the minimum price of $0.78/watt is implemented. We see residential and commercial as being less affected than utility-scale solar, but certainly all end markets would be challenged.

What is clouding things up for developers is the upcoming uncertainty. At the same time, clearly, some inventory hoarding is ongoing, with a spike in U.S. prices above the $0.50/watt level, well above the mid-$0.30/watt global average. The U.S. is 15%--20% of global module demand; the impact on global prices is limited, but this certainly hurts the domestic industry.

Global Module Prices – Brief Spike from U.S. before Relentless Declines Continue



Source: PV Insights, company reports, and FBR Research

A variety of remedies is available for the ITC and the President to consider, specific to the Suniva case, including:

- **Minimum prices:** The ITC could set a minimum price for imports (inclusive of tariff), though it has never done so in a Section 201 case.
- **Tariffs:** The most common remedy in Section 201 cases is an import tax levied on goods (cells or modules) paid by the importer of record.
- **Quota:** Volume or monetary value limits on imports for a given period. The ITC could suggest annual limits on the volume (MW) or value (total price) of panel imports per country.
- **Tariff-rate quotas (TRQ):** A common remedy at the ITC, a combination of tariffs and quota that would set a maximum level of tariff-free imports for reach country (quota) then taxes (tariff) on imports above that level. The tariff could be fixed or scaled to increase with increasing levels of imports above the quota. We note: The TRQ could lead to front-loading module purchases and/or source diversification.
- **Trade adjustment assistance program.** Adjustment assistance is used primarily to aid workers or firms that have suffered negative economic impacts from foreign trade. The federal government provides aide by allocating funds to states who then distribute these funds based on program eligibility. In 2012, the Department of Labor ruled that laid-off SolarWorld employees would be eligible for funds due to Chinese PV cell imports that contributed to a factory closure.

Suniva and SolarWorld have offered four different methods of relief:

- (1) **Specific minimum import prices and implementation of tariffs.** Petitioners have requested a minimum price for imports of $0.78 per watt on modules and a tariff of $0.40 per watt for cells, phasing down over four years. The requested schedule:
  - 1st Year: $0.40 per watt for cells, with a minimum import price of $0.78 per watt for modules.
  - 2nd Year: $0.37 per watt for cells, with a minimum import price of $0.72 per watt for modules.
  - 3rd Year: $0.34 per watt for cells, with a minimum import price of $0.69 per watt for modules.
  - 4th Year: $0.33 per watt for cells, with a minimum import price of $0.68 per watt for modules.
- **(2) Distribution of duty deposits held by the U.S. Customs and Border Protection.** Petitioners have requested the U.S. to distribute duty deposits to U.S. producers of crystalline silicon cells and modules and U.S. producers of polysilicon of anti-dumping and countervailing duties collected and still under suspension in the ongoing anti-dumping and countervailing duty cases targeting crystalline silicon cells and modules from China and Taiwan.
- **(3) Creation of an economic investment development program funded with the tariffs collected under any resulting remedies under a safeguard action.**
- **(4) Bilateral and multilateral negotiations by the U.S. government to reduce global excess capacity and restore a supply-and-demand balance in the global market.**

Impact

Where it gets tricky for investors is whether or not the ITC will find injury, and what the remedy will be. Our view is that the $0.78/watt minimum price is overly aggressive and jeopardizes employment in the solar sector by making a substantial portion of the solar pipeline uneconomical. Suniva actually made a unique technology choice when it chose to use ion implant tools for cell manufacturing in Georgia, in lieu of the traditional approach of using diffusion furnaces. The company also built a facility in Michigan to build cells. While this ion implant approach led to very high-efficiency cells and modules, the cost profile was very high. The manufacturing cost of most Asian producers ending 2Q17 was $0.32–$0.37/watt, with a path to lower that range by $0.02–$0.03 over the next six to 12 months as new higher-efficiency PERC lines ramp up. So this raises the questions: Did Suniva chose a technology path that might never be cost competitive? Does this have any impact on the upcoming ruling? Would the ITC extrapolate from its uncompetitive cost profile and rule against Suniva?

SolarWorld and Suniva's production costs are nowhere close to the Chinese. We do not believe that SolarWorlds's cost is anywhere close to the $0.78 *ask price* that Suniva has made, but we could see Suniva's cost at the $0.60 level, and then having the target price of $0.78, including what it might see as a reasonable margin.

What might the ITC do? Should the ITC find injury, we would expect the Commission to recommend a duty resulting in a price lower than the $0.78/watt proposed by Suniva. We note former SEIA President Rhone Resch has highlighted that minimum import prices are a low probability but, if established, could range from $0.55 to $0.78/watt. ("Business Strategies for Managing the Section 201 Solar Trade Battle," *Greentech Media*, Aug. 14, 2017). A key debatable point for investors: Would there be a tariff on modules, or a minimum import price, or a combination of the two. While the original petition calls for duties only on cells, we believe the ITC could propose a duty on modules. There is a question as to whether minimum price floors would be allowed by statute. A duty would count against the cost of goods sold of producers, affecting gross margins, whereas a minimum import price would not have this impact on the financial statements of companies.

We do not see Armageddon. Our discussions with major developers and module producers indicate that, if there is a tariff or minimum import price of less than $0.50/watt, the industry could survive

without huge disruption. To put this in perspective: It is essentially where pricing in the U.S. was 18 months ago. This extra approximate $0.15/watt would affect PPA prices by roughly $0.01. We believe the effects would not begin to influence utility-scale PPAs until 2018 and potentially last through 2020–2021, depending on the length of the remedy. We see less of an impact to residential and C&I sectors that do not operate under PPA structures.

Considerations

Argument in favor of Section 201. We believe that arguments in favor of a remedy focus on: (1) the substantial growth in foreign module imports (and whether or not they are unfairly subsidized by their governments) and (2) the importance of promoting domestic manufacturing jobs in a growth industry.

From 2012 to 2016, U.S. imports increased five times, capturing virtually all of the 350% increase in U.S. demand. In 2016 alone, imports grew 50%, to $7 billion, as foreign producers contributed to substantial global overcapacity and targeted the U.S. market. During 2012–2016, almost 30 U.S. manufacturers went bankrupt, causing substantial job losses; but this glut of modules was also good for project developers, who employ significantly more people than manufacturers (200,000 versus 35,000-40,000). So solar installers and developers see the case as a potential threat to continued expansion, even in the face of U.S. solar module manufacturing that has been decimated.

As a larger trade issue, in particular with China, it is not so cut and dry: In two recent investigations, the U.S. government found that the Chinese government had sponsored its solar manufacturing industry's export drive, under China's Five-Year Plan, with export subsidies the U.S deemed illegal. Panel OEMs were also found to be selling into the U.S. market at prices under production costs, also called "illegal dumping." Duties imposed temporarily helped the U.S. solar manufacturing industry from 2014–2015. But then, China solar companies, using alleged state-supplied subsidized financing, built up operations in Southeast Asia to evade the tariffs: Now, U.S.-bound imports arrive from Malaysia, the Philippines, Thailand, Vietnam, etc. Meanwhile, imports from China increased over 700% from 2012–2016. These developments seemingly hurt the U.S. solar manufacturing industry in 2016, and more bankruptcies followed. Finally, although the Chinese and other exporters are allowed access to U.S. solar markets, the Chinese market is largely closed to competition from imports.

Considering the growth of the U.S. solar market, is it clear that President Trump may consider it fair to promote the U.S. domestic manufacturing industry. Industry participants agree that steadily decreasing prices promote solar growth and are necessary. An important question is how much price declines are from technological advances, supply chain improvements, etc., rather than imports decoupled from production costs, potentially illegally subsidized by foreign governments.

U.S. solar demand increased from 3.4 GW in 2012 to approximately 14.8 GW in 2016, and almost 100% from 2015 to 2016, the 17th straight year of growth. Solar was the fastest-growing U.S. energy source. We do not see this trade case as simply one of economics; it also includes a heavy dose of politics and trade posturing.

Arguments against Section 201. There are several arguments against the Section 201 case. First, the uncertainty of the case hurts solar project development as installers/developers do not know if modules will be available, or in sufficient quantities, if Suniva wins. The uncertainty created a land grab for solar modules as developers hedged their bets. If Suniva is granted relief, the number of modules is expected to fall precipitously, and developers cannot be caught without materials. So, instead of typical inventory depletion that occurs in 4Q, the shortage started in June—five months ahead of schedule. So, despite rapid solar growth every year, how can a developer build a project without knowing what the price of modules is going to be next year? Shovel-ready projects cannot proceed until final costs are known, and uncertain module prices have made many companies hit the pause button on 2018 planning.

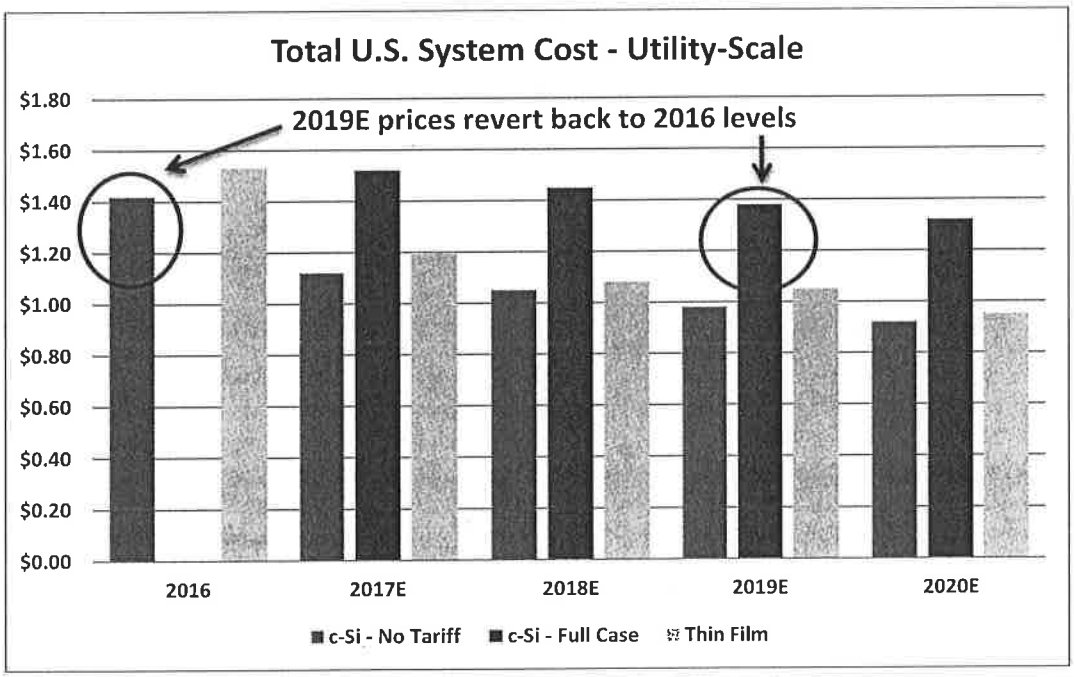
Second, financers will gravitate to the financially strongest or demand a higher return for the price uncertainty. For example, companies that have financing access—either self-financed or from close relationships with banks and institutional investors—can withstand this module shortage without it

significantly affecting their business. But smaller companies trying to build development pipelines may be severely affected. This lessens the pool of available capital for the domestic industry,

Third, numerous solar jobs could be lost. The solar industry has grown jobs by 20% over the past three years. In mid June, the Solar Energy Industry Association (SEIA) estimated that the jobs lost if Suniva wins would be 88,000, or approximately one-third of the U.S. work force. The U.S. states anticipated to lose the most jobs include California (~16,000), South Carolina (~7,000), and Texas (~6,300). These figures would affect all segments: utility-scale, C&I, and residential.

What happens to system costs if Suniva prevails? We have tried to quantify three different scenarios: (1) No injury is found; (2) Suniva gets all it is asking for; (3) injury is found, but a compromise is reached. While we believe a compromise makes the most sense, for illustration, we try to estimate the impact of solar system costs if Suniva wins outright and Trump implements everything it seeks. We call this the "bear-case scenario." We believe that a bearish scenario would cut solar demand in the U.S., perhaps as low as the available thin film capacity (for utility-scale), at least until new module production facilities are built, and by domestic cell capacity (for residential). By our estimates, the proposed tariffs would essentially return utility-scale system costs to 2016 levels. For the "compromise scenario," we assumed a $0.50–0.60/watt floor on module prices and $0.20–$0.25/watt tariff for imported cells.

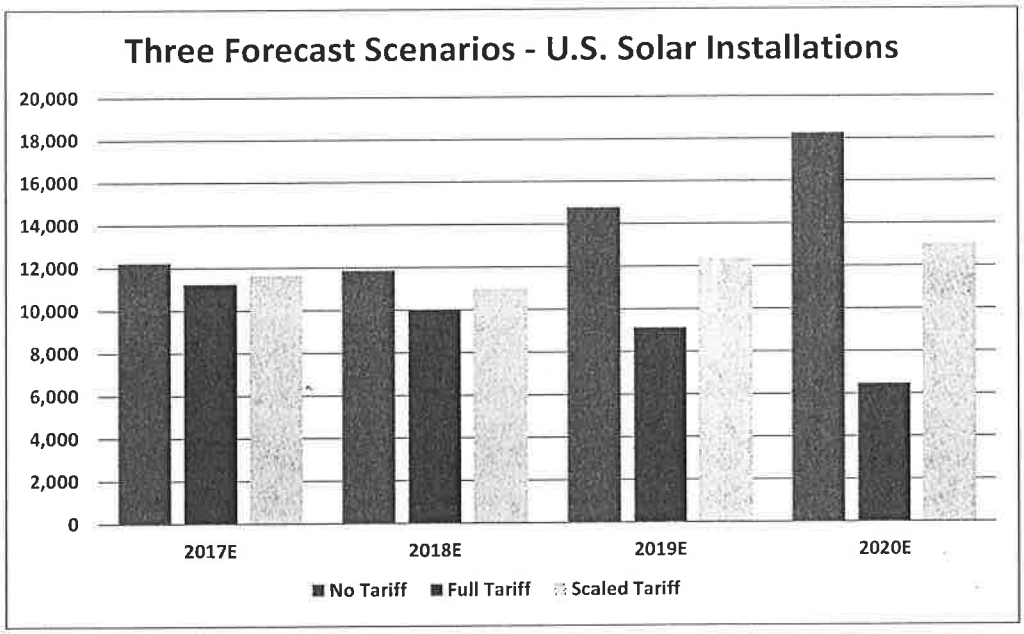
Full Tariff Implementation Could Return System Costs to 2016 Levels



Source: Company reports, GTM, FBR Research

We also estimated the impact of the three scenarios on U.S. solar demand, with a significantly different impact of future demand. Our estimates obviously factor in a number of unquantifiable factors right now, but the key takeaways are that any tariff or duty will hurt demand. The question: by how much?

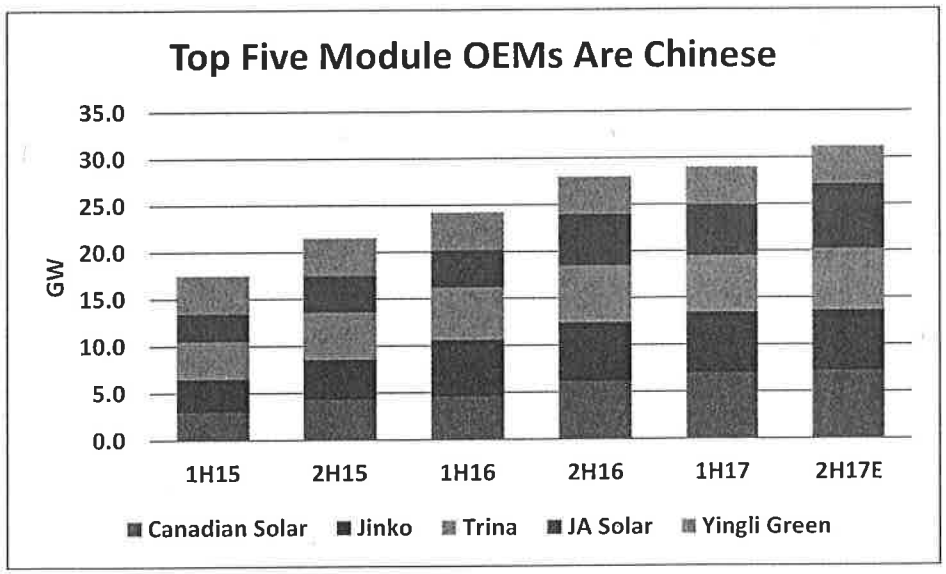
Three Scenarios All Have Different Implications for U.S Solar Demand



Source: Company reports, GTM, FBR Research

In terms of company-specific impact, the biggest losers, at least initially, would likely be the Chinese module OEMs. The top five global module OEMs are all China-based, even if one is nominally domiciled in Canada. All have significantly expanded their module manufacturing capacities in the past two to three years. This, by itself, does not mean they are conducting illegal dumping in the U.S., but they certainly have aggressively added capacity and contributed to price declines.

Top Five Module Manufacturers are Chinese and Have Doubled Capacity Since 2015



Source: Company reports and FBR Research

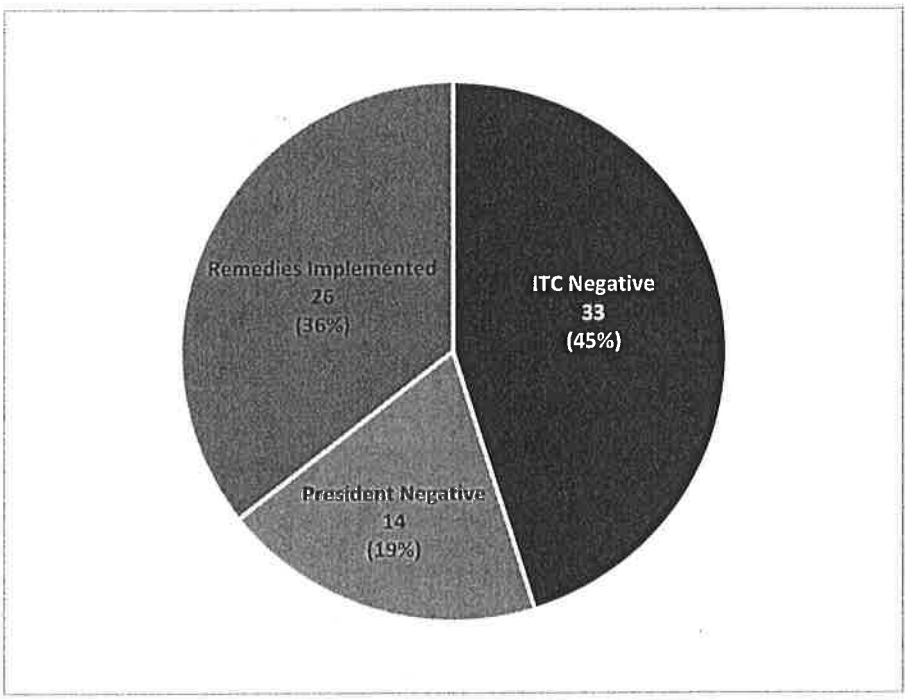
The companies most affected include the largest module OEMs that are largely Chinese and have captured the most U.S. market share since 2012. The top five global players by market share: Canadian Solar (CSIQ), Trina (private), Jinko Solar (JKS), JA Solar (JASO), and Yingli Energy (YGE). U.S.-listed companies that we see as negatively affected include upstream, downstream, and/or installers/developers. For example, we see inverter suppliers affected, such as SolarEdge (SEDG), Enphase (ENPH), SMA-Solar (S92-XE). Installers and YieldCos affected: Vivint (VSLR), SunRun (RUN), SunPower (SPWR), 8point3 (CAFD), NextEra (NEP), Brookfield (BEP, NRG Yield (NYLD) and, to a lesser

extent, Hannon Armstrong (HASI). Finally, we believe that (because it has some domestic manufacturing and a technology not included in the Section 201 complaint – thin film) First Solar (FSLR) should be one of the least affected by the outcome.

Previous Uses of Section 201

73 Section 201 investigations have been conducted to date. Since 1975, the ITC has recommended remedies in 34 cases, or 47%, while the President has implemented relief in 26 cases, or 36%, according to the ITC.

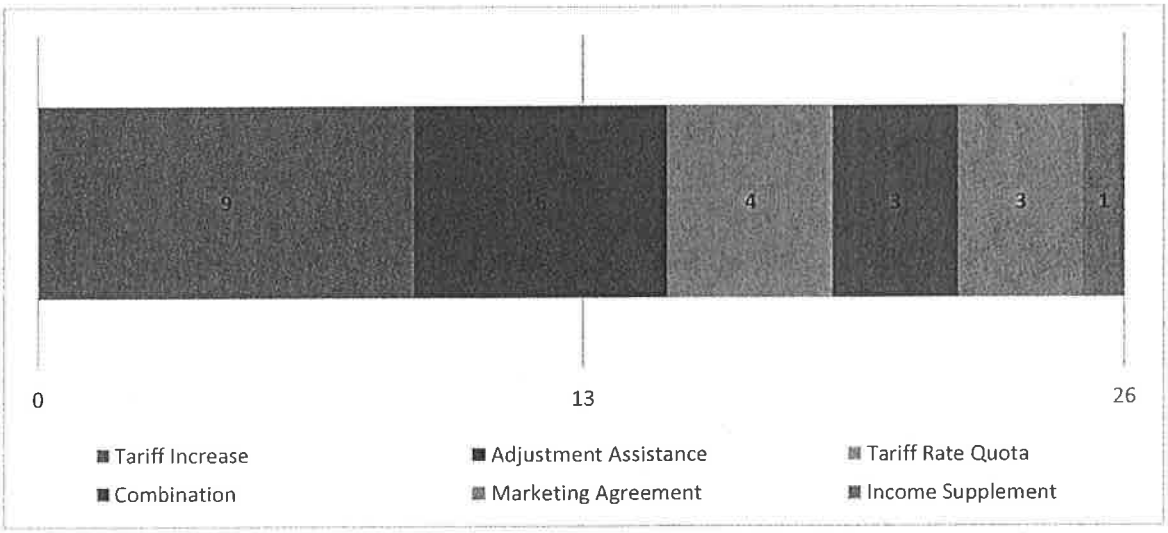
Section 201 Investigations Outcomes



Source: FBR Research, ITC, and Congressional Research Service

Tariffs, adjustment assistance, and TRQs most common remedies. In the cases in which the President granted relief, the most common form has been tariff increases, followed by adjustment assistance, tariff-rate quotas, or some combination thereof.

Implemented Trade Remedies from Section 201 Cases



Source: FBR Research, ITC, and Congressional Research Service

Section 201 last used by President Bush in a steel investigation that led to mixed results. The last use of Section 201 was by President Bush, beginning in 2001, when he directed the U.S. Trade Representative to initiate an investigation in relation to steel imports. The ITC reached a positive affirmation for 12 of the 33 steel categories by October 2001. The U.S. engaged with counterparties at the WTO through February 2002 before ultimately enacting tariffs up to 30% by March 2002. However, in December 2003, the United States withdrew the tariffs amid retaliatory pressures from the European Union and other WTO nations, while also concluding the safeguard tariffs that had been effective and had achieved their purpose.

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EXHIBIT 10

The case for U.S. solar manufacturing

In this op-ed for pv magazine, SolarWorld Americas CEO Juergen Stein argues that more stringent trade measures are needed to protect U.S. solar cell and module manufacturing from subsidized Chinese imports.

AUGUST 31, 2017 PV MAGAZINE

MODULES & UPSTREAM MANUFACTURING OPINION POLICY CHINA UNITED STATES

SolarWorld Americas

Editor's note: On August 15, pv magazine USA ran an op-ed by Tony Clifford of Standard Solar, arguing against the Section 201 petition which is currently being investigated by the ITC. Today we bring you a response from SolarWorld Americas, which joined this petition.

by Juergen Stein, CEO of SolarWorld Americas Inc.

Solar energy should be a success story for U.S. solar-panel manufacturing, an industry that this country pioneered over decades. Instead, an overwhelming crush of undersold imports has all but snuffed out the industry, an American tragedy that no observer can deny has unfolded since 2012.

From 2012 to 2016, imports swelled five times over, capturing virtually all of the 350 percent increase in U.S. demand. In 2016 alone, imports grew a staggering 50 percent – to $7 billion – as foreign producers contributed to massive global overcapacity and seized the U.S. market to dump their products.

It's no surprise, then, that this torrent of imports shredded the U.S. manufacturing industry's capacity utilization, prices and financial performance in 2016.

From 2012 to 2016, nearly 30 U.S. manufacturers were forced to shut their doors, casting off hundreds of line workers, specialized engineers and Ph.D. scientists. These laid-off workers were real people with real careers, not potentialities or hypotheticals.

As a result of this onslaught, only two significant domestic producers were able to hang on long enough to bring the solar industry's latest trade action, called a Section 201 case: Suniva Inc., which is bankrupt, and SolarWorld Americas Inc., which has suffered layoffs but still remains.

Unfortunately, solar installers and developers see the case as a potential threat to the continued rapid expansion of their businesses, despite the fact that U.S. solar-panel manufacturing is, in starkly real terms, fighting for its very survival.

Meanwhile, a third component of the struggle has driven a wedge in the U.S. industry: Chinese and other Asian manufacturers hope we fixate on short-term pricing, because they have been relentlessly committed to the long-term goal of controlling the world solar manufacturing industry.

From the standpoint of fair trade, it hasn't been a pretty picture.

In two comprehensive investigations, the U.S. government found that the Chinese government had sponsored its solar-manufacturing industry's export drive under that command government's Five Year Plan. The Chinese government showered

its industry with export-oriented subsidies, which the U.S. government two times determined to be illegal. These producers also were found to be selling into the U.S. market at prices below production costs – an illegal practice called dumping.

Resulting duties to curb the predatory effects of this import campaign helped the U.S. solar manufacturing industry for a time within the 2014-2015 period.

But then Big China Solar, armed with state-supplied subsidized financing, built up operations in Southeast Asia to evade the tariffs. Now the surge of U.S.-bound imports flows from Malaysia, the Philippines, Thailand, Vietnam and other countries. Meantime, imports from China increased some 732 percent from 2012 to 2016. These developments, combined with China slowing its purchase of solar, once again crashed U.S. domestic prices in mid-2016, causing still more U.S. bankruptcies.

Sound unfair? That's only the half of it.

Though the Chinese and other exporters enjoy access to every corner of the U.S. solar marketplace, including U.S. military bases as well as taxpayer-funded incentives, the Chinese market is closed to competition from imports. In the current trade case, even Chinese producers admit it.

So far, this asymmetrical trade aggression is winning the day.

While China and other nations are building up their technological production toward energy independence, the United States is on the brink of losing its own industry. The nation risks depending on foreign countries not only for fossil fuels but clean-energy technology as well.

Considering the growth of the U.S. solar market, the domestic manufacturing industry should be much bigger – and it still can be. But without relief from imports, the industry will disappear – and gone with it will be decades of manufacturing expertise, R&D drive and production know-how.

Everyone should want prices to steadily decline over time, but not when import prices are decoupled from the costs of production – or illegally subsidized by foreign governments. Indeed, domestic manufacturers have relentlessly reduced their costs and pricing down to 10 percent to 15 percent of total installation costs. Where are similar drives to reduce the cost components of the other 85 percent to 90 percent of the total?

Some opponents of the Section 201 case have alleged that U.S. manufacturers are somehow to blame for their own U.S. decline. But this line of argument merely amounts to blaming the victim.

Opponents also contend that relief from imports could cause layoffs in the installation business. The same corner of the industry predicted similar job-loss fallout from the first two cases – losses that never materialized as the U.S. market kept right on growing.

Indeed, U.S. demand increased from 3.4 gigawatts in 2012 to 14.8 GW in 2016. Solar installations grew nearly 100 percent from 2015 to 2016, marking the 17th straight year of growth. Last year, solar became the fastest-growing energy source nationwide.

But undersold imports have captured that growth.

The future should be bright for both installation and manufacturing segments, as analysts forecast robust growth to continue through 2018 and beyond.

What do opponents of the trade case imagine would happen if the last U.S. manufacturers disappeared? What would replace the comparatively high-wage, high-benefit employment of yet another U.S. manufacturing industry? Would the installation industry become more vulnerable to the Chinese government's control of pricing? Would the world industry continue to develop technologically? Would the United States truly make progress toward energy independence?

The sun shines bountifully across this vast nation. The U.S. and global solar markets are strong and growing. With a domestic solar-panel manufacturing industry, the possibilities for gains in energy independence are spectacular.

But to realize these possibilities, we must take a stand against China and other Asian countries from unfairly taking over yet another U.S. high-tech industry – and in support of American manufacturing, R&D and innovation.

The views and opinions expressed in this article are the author's own, and do not necessarily reflect those held by **pv magazine.**

PV MAGAZINE

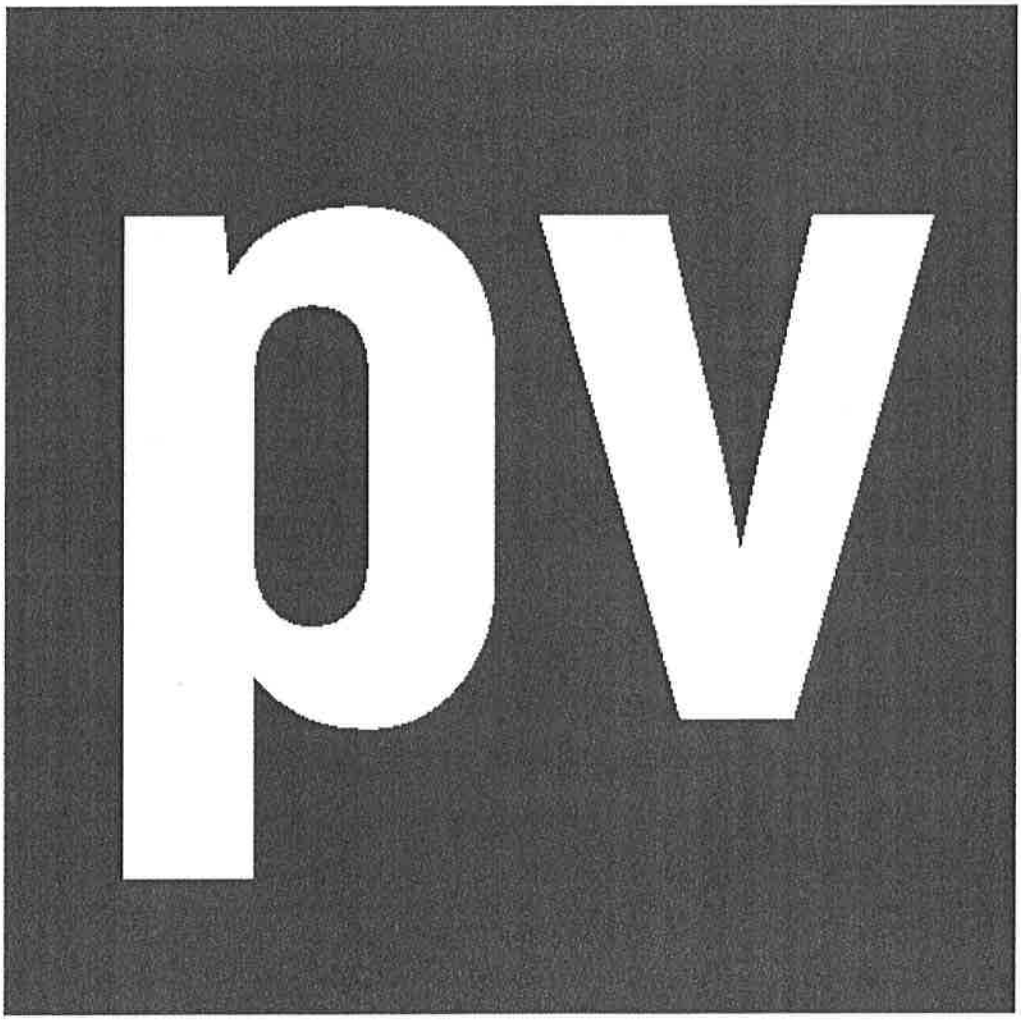

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EXHIBIT 11

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Date
22 September 2017

Breaking News

What does the ITC decision mean for solar sector?

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What happened?
As expected, the ITC determined that imports of c-Si solar cells and modules were the likely drivers of injury to the domestic solar manufacturers. The commission voted 4-0 in favor of the petitioners (vs expectations of a 3-1 vote). The case now moves to the remedy phase (with a hearing scheduled for Oct 3) and ITC recommendation to the President would likely be made on Nov 13. The president then needs make a final decision within 60 days of ITC recommendation.

How significant would be the remedy action? What does this mean to solar sector and stocks?
Our view is that the ITC would likely consider the impact on the downstream jobs when it proposes a remedy action. As such, the final remedy recommendation would result in a small overall tariff (with some form of quota adjustment mechanism - for example the first 8GW of products would have little to no tariffs). We also believe the overall module price adjusted for any tariff would be likely similar or even lower compared to current module price. Finally we note that it would take about 6-9 months for Chinese companies to bring manufacturing capacity online in the US and as such any demand reduction resulting from higher module prices would be likely temporary.

In terms of impact on overall US solar demand, we believe the US utility scale market could likely see the biggest impact (some utilities have come out strongly against the ITC decision highlighting that tariffs would result in a 30% increase in costs and lower demand significantly). Assuming the US solar market is around 18-20GW this year with utility scale roughly 10-12GW, demand next year could likely decline to 8-10GW (in the worst case scenario of high tariffs) unless a more gradual quota based tariff is announced. In the case of resi companies for example, module costs are only about 12% of total installed costs and as such any potential tariff would have a minimal impact (~6-8%) on costs which could likely get offset by lower customer acquisition costs.

As for stock implications, the ITC decision is a positive for FSLR (see upside to $110 in bull case - see report for more details although we believe the company will not make a decision on S4 capacity until final outcome on 201 is known). Although the ITC decision is a potential negative for downstream companies, we believe RUN has locked supply through major part of next year and should be able to offset any cost increases with reduction in customer acquisition costs.

Other points on the 201 case process

1) The ITC may recommend an increase in a duty, imposition of a quota, imposition of a tariff-rate quota (e.g. a two-level tariff, under which goods enter at a higher duty after the quota is filled), trade adjustment assistance, or any combination of the above. The ITC may also recommend that the President initiative international negotiations. The remedy action is temporary, the initial period of relief cannot be longer than 4 years, and the effective period of relief cannot be more than 8 years total.

2) The section 201 investigations are not country specific. However, ITC is required to make additional separate findings for countries with which the US has free trade agreements, which include Canada, Mexico and South Korea to name a few.

Appendix 1

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*Other information available upon request

Disclosure checklist Company	Ticker	Recent price*	Disclosure
First Solar Inc.	FSLR.OQ	48.76 (USD) 21 Sep 2017	2, 6, 7, 9, 14, 15
Sunrun	RUN.OQ	5.47 (USD) 21 Sep 2017	8

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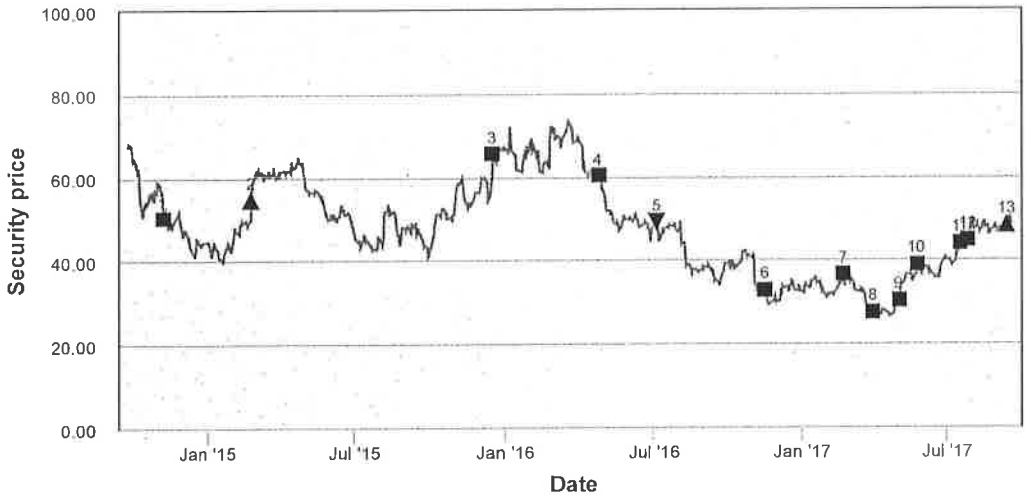
Historical recommendations and target price. First Solar Inc. (FSLR.OQ)
(as of 09/21/2017)

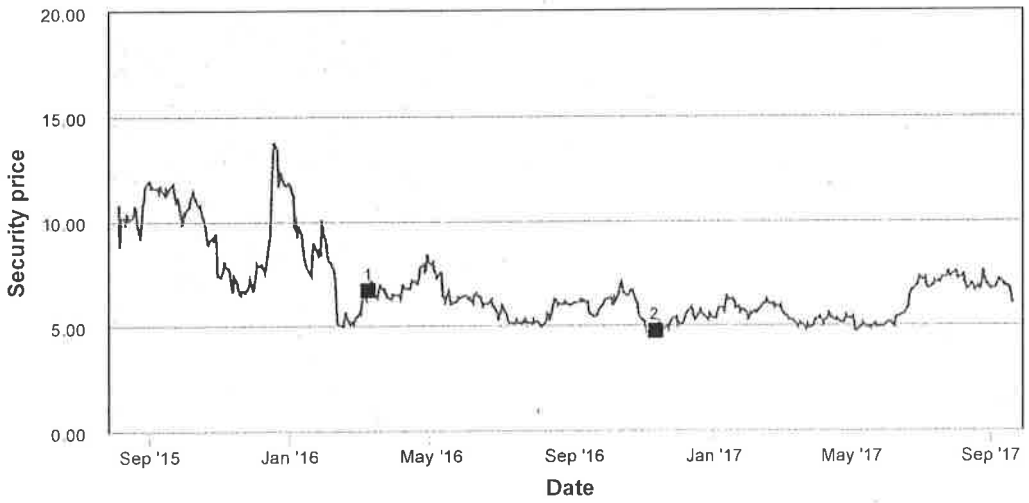


Current Recommendations
Buy
Hold
Sell
Not Rated
Suspended Rating

** Analyst is no longer at Deutsche Bank

1.	11/07/2014	Hold, Target Price Change USD 60,00 Vish Shah
2.	02/24/2015	Upgraded to Buy, Target Price Change USD 68,00 Vish Shah
3.	12/17/2015	Buy, Target Price Change USD 86,00 Vish Shah
4.	04/26/2016	Buy, Target Price Change USD 80,00 Vish Shah
5.	07/07/2016	Downgraded to Hold, Target Price Change USD 44,00 Vish Shah
6.	11/17/2016	Hold, Target Price Change USD 30,00 Vish Shah
7.	02/22/2017	Hold, Target Price Change USD 38,00 Vish Shah
8.	03/31/2017	Hold, Target Price Change USD 32,00 Vish Shah
9.	05/03/2017	Hold, Target Price Change USD 36,00 Vish Shah
10.	05/25/2017	Hold, Target Price Change USD 38,00 Vish Shah
11.	07/19/2017	Hold, Target Price Change USD 47,00 Vish Shah
12.	07/28/2017	Hold, Target Price Change USD 50,00 Vish Shah
13.	09/15/2017	Upgraded to Buy, Target Price Change USD 65,00 Vish Shah

Historical recommendations and target price. Sunrun (RUN.OQ)
(as of 09/21/2017)



Current Recommendations
Buy
Hold
Sell
Not Rated
Suspended Rating

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2.	11/11/2016	Buy, Target Price Change USD 12,00 Vish Shah

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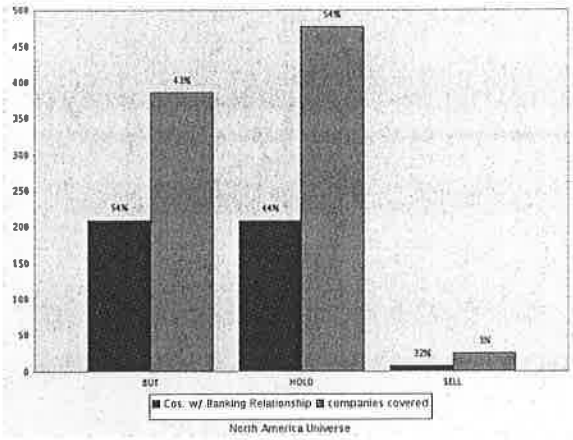

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EXHIBIT 12

JUSTICE NEWS

Department of Justice

Office of Public Affairs

FOR IMMEDIATE RELEASE

Monday, May 19, 2014

U.S. Charges Five Chinese Military Hackers for Cyber Espionage Against U.S. Corporations and a Labor Organization for Commercial Advantage

First Time Criminal Charges Are Filed Against Known State Actors for Hacking

A grand jury in the Western District of Pennsylvania (WDPA) indicted five Chinese military hackers for computer hacking, economic espionage and other offenses directed at six American victims in the U.S. nuclear power, metals and solar products industries.

The indictment alleges that the defendants conspired to hack into American entities, to maintain unauthorized access to their computers and to steal information from those entities that would be useful to their competitors in China, including state-owned enterprises (SOEs). In some cases, it alleges, the conspirators stole trade secrets that would have been particularly beneficial to Chinese companies at the time they were stolen. In other cases, it alleges, the conspirators also stole sensitive, internal communications that would provide a competitor, or an adversary in litigation, with insight into the strategy and vulnerabilities of the American entity.

"This is a case alleging economic espionage by members of the Chinese military and represents the first ever charges against a state actor for this type of hacking," U.S. Attorney General Eric Holder said. "The range of trade secrets and other sensitive business information stolen in this case is significant and demands an aggressive response. Success in the global market place should be based solely on a company's ability to innovate and compete, not on a sponsor government's ability to spy and steal business secrets. This Administration will not tolerate actions by any nation that seeks to illegally sabotage American companies and undermine the integrity of fair competition in the operation of the free market."

"For too long, the Chinese government has blatantly sought to use cyber espionage to obtain economic advantage for its state-owned industries," said FBI Director James B. Comey. "The indictment announced today is an important step. But there are many more victims, and there is much more to be done. With our unique criminal and national security authorities, we will continue to use all legal tools at our disposal to counter cyber espionage from all sources."

"State actors engaged in cyber espionage for economic advantage are not immune from the law just because they hack under the shadow of their country's flag," said John Carlin, Assistant Attorney General for National Security. "Cyber theft is real theft and we will hold state sponsored cyber thieves accountable as we would any other transnational criminal organization that steals our goods and breaks our laws."

"This 21st century burglary has to stop," said David Hickton, U.S. Attorney for the Western District of Pennsylvania. "This prosecution vindicates hard working men and women in Western Pennsylvania and around the world who play by the rules and deserve a fair shot and a level playing field."

Summary of the Indictment

Defendants : Wang Dong, Sun Kailiang, Wen Xinyu, Huang Zhenyu, and Gu Chunhui, who were officers in Unit 61398 of the Third Department of the Chinese People's Liberation Army (PLA). The indictment alleges that Wang, Sun, and Wen, among others known and unknown to the grand jury, hacked or attempted to hack into U.S. entities named in the indictment, while Huang and Gu supported their conspiracy by, among other things, managing infrastructure (e.g., domain accounts) used for hacking.

Victims : Westinghouse Electric Co. (Westinghouse), U.S. subsidiaries of SolarWorld AG (SolarWorld), United States Steel Corp. (U.S. Steel), Allegheny Technologies Inc. (ATI), the United Steel, Paper and Forestry, Rubber, Manufacturing, Energy, Allied Industrial and Service Workers International Union (USW) and Alcoa Inc.

Time period : 2006-2014.

Crimes : Thirty-one counts as follows (all defendants are charged in all counts).

Count(s)	Charge	Statute	Maximum Penalty
1	Conspiring to commit computer fraud and abuse	18 U.S.C. § 1030(b).	10 years.
2-9	Accessing (or attempting to access) a protected computer without authorization to obtain information for the purpose of commercial advantage and private financial gain.	18 U.S.C. §§ 1030(a)(2)(C), 1030(c)(2)(B)(i)-(iii), and 2.	5 years (each count).
10-23	Transmitting a program, information, code, or command with the intent to cause damage to protected computers.	18 U.S.C. §§ 1030(a)(5)(A), 1030(c)(4)(B), and 2.	10 years (each count).
24-29	Aggravated identity theft.	18 U.S.C. §§ 1028A(a)(1), (b), (c)(4), and 2	2 years (mandatory consecutive).
30	Economic espionage.	18 U.S.C. §§ 1831(a)(2), (a)(4), and 2.	15 years.
31	Trade secret theft.	18 U.S.C. §§ 1832(a)(2), (a)(4), and 2.	10 years.

Summary of Defendants' Conduct Alleged in the Indictment

Defendant	Victim	Criminal Conduct
Sun	Westinghouse	In 2010, while Westinghouse was building four AP1000 power plants in China and negotiating other terms of the construction with a Chinese SOE (SOE-1), including technology transfers, Sun stole confidential and proprietary technical and design specifications for pipes, pipe supports, and pipe routing within the AP1000 plant buildings. Additionally, in 2010 and 2011, while Westinghouse was exploring other business ventures with SOE-1, Sun stole sensitive, non-public, and deliberative e-mails belonging to senior decision-makers responsible for Westinghouse's business relationship with SOE-1.
Wen	SolarWorld	In 2012, at about the same time the Commerce Department found that Chinese solar product manufacturers had "dumped" products into U.S. markets at prices below fair value, Wen and at least one other, unidentified co-conspirator stole thousands of files including information about SolarWorld's cash flow, manufacturing metrics, production line information, costs, and privileged attorney-client communications relating to ongoing trade litigation, among other things. Such information would have enabled a Chinese competitor to target SolarWorld's business operations aggressively from a variety of angles.
Wang and Sun	U.S. Steel	In 2010, U.S. Steel was participating in trade cases with Chinese steel companies, including one particular state-owned enterprise (SOE-2). Shortly before the scheduled release of a preliminary determination in one such litigation, Sun sent spearphishing e-mails to U.S. Steel employees, some of whom were in a division associated with the litigation. Some of these e-mails resulted in the installation of malware on U.S. Steel computers. Three days later, Wang stole hostnames and descriptions of U.S. Steel computers (including those that controlled physical access to company facilities and mobile device access to company networks). Wang thereafter took steps to identify and exploit vulnerable servers on that list.
Wen	ATI	In 2012, ATI was engaged in a joint venture with SOE-2, competed with SOE-2, and was involved in a trade dispute with SOE-2. In April of that year, Wen gained access to ATI's network and stole network credentials for virtually every ATI employee.
Wen	USW	In 2012, USW was involved in public disputes over Chinese trade practices in at least two industries. At or about the time USW issued public statements regarding those trade

		disputes and related legislative proposals, Wen stole e-mails from senior USW employees containing sensitive, non-public, and deliberative information about USW strategies, including strategies related to pending trade disputes. USW's computers continued to beacon to the conspiracy's infrastructure until at least early 2013.
Sun	Alcoa	About three weeks after Alcoa announced a partnership with a Chinese state-owned enterprise (SOE-3) in February 2008, Sun sent a spearphishing e-mail to Alcoa. Thereafter, in or about June 2008, unidentified individuals stole thousands of e-mail messages and attachments from Alcoa's computers, including internal discussions concerning that transaction.
Huang		Huang facilitated hacking activities by registering and managing domain accounts that his co-conspirators used to hack into U.S. entities. Additionally, between 2006 and at least 2009, Unit 61398 assigned Huang to perform programming work for SOE-2, including the creation of a "secret" database designed to hold corporate "intelligence" about the iron and steel industries, including information about American companies.
Gu		Gu managed domain accounts used to facilitate hacking activities against American entities and also tested spearphishing e-mails in furtherance of the conspiracy.

An indictment is merely an accusation and a defendant is presumed innocent unless proven guilty in a court of law.

The FBI conducted the investigation that led to the charges in the indictment. This case is being prosecuted by the U.S. Department of Justice's National Security Division Counterespionage Section and the U.S. Attorney's Office for the Western District of Pennsylvania.

Related Materials:

Indictment

Topic(s):
Intellectual Property

Component(s):
Office of the Attorney General

Press Release Number:
14-528

Updated July 22, 2015

EXHIBIT 13

Department of Energy

y Department Announces Achievem ıShot Goal, New Focus for Solar Ene Office

SEPTEMBER 12, 2017

R&D will include focus on reliability, resilience, and storage

WASHINGTON, D.C. - In conjunction with the annual Solar Power International conference, the **U.S. Department of Energy** (DOE) released new research today that shows the solar industry has achieved the 2020 utility-scale solar cost target set by the SunShot Initiative. Largely due to rapid cost declines in solar photovoltaic (PV) hardware, the average price of utility-scale solar is now 6 cents per kilowatt-hour (kWh).

Given this success, DOE is looking beyond SunShot's 2020 goals with an expanded 2030 vision for the Solar Energy Technologies Office. Specifically, while DOE will continue research to drive down costs, new funding programs will focus on a broader scope of Administration priorities, which includes early-stage research to address solar energy's critical challenges of grid reliability, resilience, and storage.

"With the impressive decline in solar prices, it is time to address additional emerging challenges," said Daniel Simmons, Acting Assistant Secretary for Energy Efficiency and Renewable Energy. "As we look to the future, DOE will focus new solar R&D on the Secretary's priorities, which include strengthening the reliability and resilience of the electric grid while integrating solar energy."

To further the new priorities for DOE's Solar Energy Technologies Office, Acting Assistant Secretary Simmons today announced up to $82 million in early-stage research in two areas:

- **Concentrating Solar Power (CSP): Up to $62 million will support advances in CSP technologies to enable on-demand solar energy. CSP technologies use mirrors to reflect and concentrate sunlight onto a focused point where it is collected and converted into heat. This thermal energy can be stored and used to produce electricity when the sun is not shining or integrated into other applications, such as producing fresh water or supplying process heat. Learn more about the Generation 3 Concentrating Solar Power funding opportunity HERE.**
- **Power Electronics: Up to $20 million is dedicated to early-stage projects to advance power electronics technologies. Such innovations are fundamental to solar PV as the critical link between PV arrays and the electric grid. Advances in power electronics will help grid operators rapidly detect problems and respond, protect against physical and cyber vulnerabilities, and enable consumers to manage electricity use. Learn more about the Power Electronics funding opportunity HERE.**

Awardees will be required to contribute 20 percent of the funds to their overall project budget, yielding total public and private spending of nearly $100

million. The funds provided are not grants, but cooperative agreements, which involve substantial federal oversight and consist of go/no-go technical milestones that ensure attentive stewardship of projects.

Solar energy currently supplies about 1.5 percent of U.S. electricity. With DOE's help, the solar industry has drastically cut costs to enable technological innovation and market growth. In the last 10 years, the amount of solar power installed in the U.S. has increased from 1.1 gigawatts (GW) in 2007 to an estimated 47.1 GW in 2017—enough to power the equivalent of 9.1 million average American homes.

According to the report from the National Renewable Energy Laboratory released today, low module prices have been the primary driver of cost reductions for solar energy. The more stubborn "soft" costs like labor, permitting, interconnection, customer acquisition, financing, and grid integration, remain challenges.

To learn more about the work being done by the Department's Solar Energy Technologies Office visit their website HERE.

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EXHIBIT 14

www.photon.info

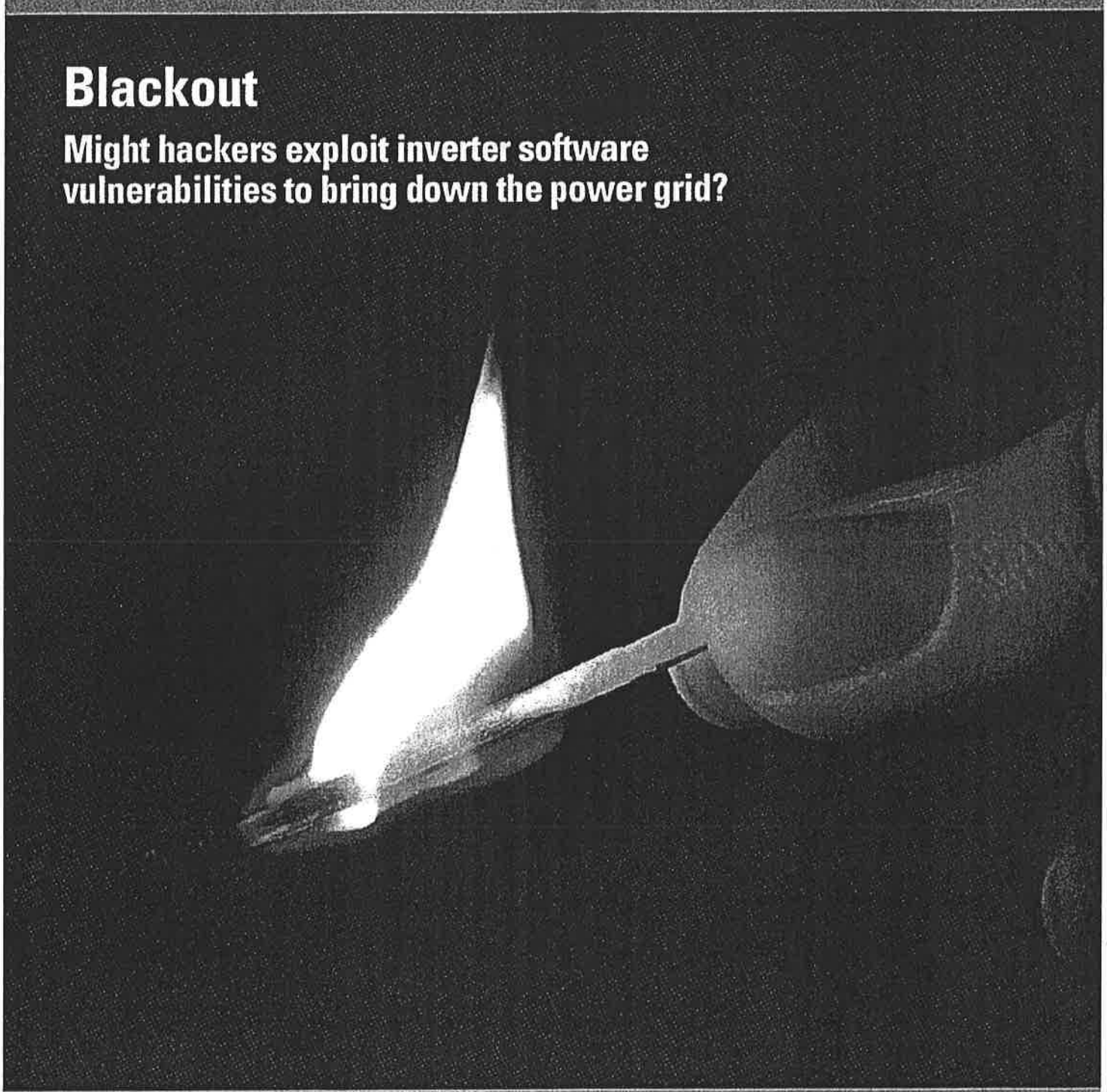
Photon

The Solar Power Magazine International

8-2017

Blackout

Might hackers exploit inverter software vulnerabilities to bring down the power grid?



Standstill in China
Despite solar growth, energy mix reform is making slow progress

Cloud-based storage
»Solar clouds« are proving a popular way of marketing battery storage systems

Energy self-sufficiency
Companies in Germany are experimenting with a fully self-sufficient power supply

Troubleshooting
Huawei inverters use the I-V curve to analyze system faults

Inverters being hacked

An employee of the Dutch company ITsec Security Services examined inverters made by the manufacturer SMA to see if they are susceptible to being hacked – and found 21 different vulnerabilities. If the devices were to be switched off simultaneously by means of outside intervention, this could result in a blackout. The employee published his findings on a website set up for this purpose, and thereby brought the topic to the public's attention. »Security researchers outline blackout scenario in Europe caused by solar power system vulnerabilities« was the headline that appeared in the press.

Such headlines, of course, unsettle operators of solar power systems and potential customers. Who wants to share responsibility for a collapse of the power grid? It is therefore understandable that SMA's press department immediately responded by playing down the topic. The newer devices feature extensive protection against hacker attacks »if the measures of the Cyber Security Guidelines we issue are carefully followed«.

That's where the problems starts: for example, the cyber security policy specifies that the default password must be changed. Experience has shown that barely anyone does, and if they do, the passwords are not compliant with current security practices. Therefore, it has become industry standard practice to no longer expect the user to attend to this matter, and instead to provide each electronic device connected to the Internet with an individual password. Anyone who has ever used a recent-model Wi-Fi router will be familiar with this procedure. The inverter industry should be assuming a leading role in preventing cyberattacks by intensifying its efforts to ensure adequate levels of IT security.

What is also remarkable is the statement made by the SMA board of directors stating that there is no »secret super password«. Experience has also shown that closing these backdoors into software can represent a huge challenge. The statement that the management board of SMA does not have a secret password for all devices is likely to be correct; not, however, the assertion that such a password does not exist. The developers of the software are only people too, and put safeguards in place to cover any mistakes made. Other companies have had the same experience – and even major manufacturers of network equipment, such as Cisco and Nortel, have established that their hardware is not free of vulnerabilities eithers.

Reducing the vulnerabilities that backdoors like this facilitate requires thorough testing of the software to eliminate any such risks. And yet there is no such thing as fail-safe security. Sensitive systems such as aircraft avionics software therefore undergo extensive testing to verify that the software is safe. Testing is extremely complex, takes years and costs a lot of money. Imposing this process on solar inverters would lead to a dramatic increase in sales prices, thereby making this approach anything but viable.

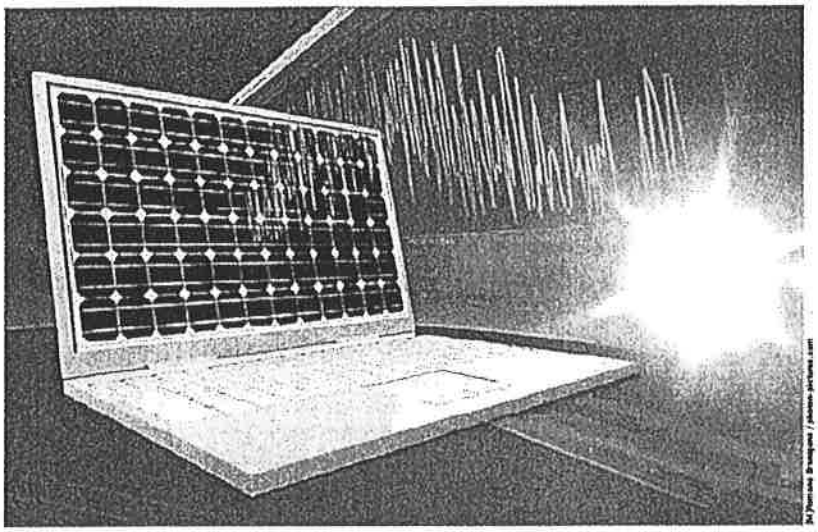
There is only one thing that really helps to maintain the required level of assurance: Inverters should not be configured using the Internet. The best thing to do is to let the inverter's own control system function without outside intervention. Only the data logger would then be able to be accessed online. Unfortunately, the train is currently moving in the other direction. Grid operators in particular want to be able to access inverter functions in order to throttle the level of solar power being fed in should grid overload occur. The US standardization process has now also extended its coverage to include »rapid shutdown« by external means. In many countries, similar efforts are being made to allow grid operators to access and send commands to inverters. Preventing hackers from accessing the inverters altogether is therefore not possible.

Discussions on this subject often suggest that there are no alternatives. However, that is not true. Just about every inverter features an integrated grid monitoring function. It monitors the grid voltage and grid frequency on an ongoing basis. This means that the inverter can easily determine if there is excess power in the grid segment to which it is connected, and the inverter can then throttle output accordingly. However, grid operators would also like to reduce inverter output when there is excess power in upstream grid segments. There is a different solution to this situation which involves the use of local network transformers. Wherever they exist, inverter output can be throttled by changing the secondary grid voltage. Instead of sending commands to hundreds or even thousands of inverters, communication with a single local grid transformer would suffice. Implementing a secure operating system on this one device would then solve the problem.

IT security is not, of course, a problem specific to photovoltaics. Inverter manufacturers do, however, need to step up to the plate and solve the problem once and for all, and play their part in securing a reliable renewables-based energy supply that is not vulnerable to malicious attacks – and certainly avoid denying the severity of the problem.

As always, I would be happy to discuss this subject with you in more detail. Please send me an email to philippe.welter@photon.info.

Publisher and founder of PHOTON Philippe Welter



▶ Might the Internet present a threat? SMA doesn't think there is a risk, but does admit to »potential security issues«.

science & technology

»Uncertainty and concern«

Are hackers able to launch attacks on solar arrays through the inverter?

Text: Andreas Lohse

o Highlights

- The threat of a blackout caused by hacker attacks on inverters used in solar power arrays is a headline-grabbing issue.
- The media resonance to a website that describes this very scenario using devices made by the manufacturer SMA as an example was correspondingly large.
- The reality isn't quite this dramatic, however the topic still needs to be taken seriously.

Horus scenario: Security experts describe Europe-wide blackout due to vulnerabilities in solar power systems.« This, and similar, headlines, which in this case appeared on the online news site heise.de, are currently spreading uncertainty among operators of solar power systems. Hackers are in a position to wreak havoc on the European power grid, or even cripple it, as the summary of the report outlined. This is possible by exploiting security loopholes in photovoltaic arrays, or specifically: By means of the inverters, which are connected to the Internet. This is the claim made by a specially set up website titled »Horus scenario« (https://horusscenario.com). The website's name is not a spelling mistake made writing the word »horror«, but rather is derived from the Egyptian sun god.

The scenario it describes is not, however, just a myth. It aims to identify the weak spots in grid-connected solar arrays should a cyber-attack occur. If a large number of solar power plants distributed over a large area were suddenly to be shut down in one go, as the key argument goes, then grid stability will be at risk – a situation comparable with an unexpected solar eclipse in which no-one has made the preparations necessary to restore grid stability within fractions of a second.

That this is, in fact, possible, has been proved by an assistant by the name of Willem Westerhof at the Dutch company ITsec Security Services by »conducting tests to identify vulnerabilities«. Of particular interest to him were the inverters made by the manufacturer SMA – not because they are especially vulnerable, but rather because they are generally considered to be secure and because SMA, measured in terms of the number of inverters sold in Europe to date, is the market leader in this area.

Westerhof was able to identify a total of 21 different weak points – which he is not, however, willing to name in more detail for »ethical and security-relevant reasons«. Nonetheless, it is not only possible to hack into individual devices, but also to seize control of them and then manipulate the function of several devices to set a chain reaction in motion – one that could extend to the aforementioned nationwide shutdown of solar power systems together with the resulting blackout. SMA was already informed of all findings and details of the vulnerabilities in December 2016.

Skewing the facts

That the danger of feed-in systems all being hijacked at the same time – and this could happen to other technologies than photovoltaics as well – is in fact a very real one is by no means a new realization. In the case of solar power arrays with

a relatively low capacity in particular, it would take an extremely well-coordinated operation to destabilize the power grid by shutting down multiple generators at the same time. Nevertheless, the current headlines have not failed to have an effect: »The report by Willem Westerhof has led to uncertainty and concern among around customers, whom we informed immediately in order to straighten out the facts,« as SMA explained in response to inquiries.

Work is proceeding intensely »on rectifying potential vulnerabilities, ones which are only exhibited by a few, older devices from our product range« – such as the Sunny Boy TLST-21 and TL21 model series and the Sunny Tripower TL-10 and TL-30 series. The remaining SMA products »satisfy the latest security standards to prevent cyberattacks«. The devices named here also feature comprehensive protection from potential attacks by hackers »as long as the measures specified in the cyber security guidelines we release are complied with properly«, as SMA explains. The inverters were »delivered with a pre-installed password which must, as we expressly point out, be reset after installation and be changed by the user.«

This does, however, mean that the manufacturer is simply fobbing the responsibility for the security of the electronic devices connected to the grid off to its customers. The industry standard today, in contrast, is to deliver each and every device with a randomly generated starter password which the customers finds on a sticker applied to the device. This ensures it remains secure even when the customer fails to change the password. Anyone who has hooked up a new Wi-Fi router will be familiar with this procedure.

SMA continues by explaining that a number of the statements made in the scenario are not actually correct, and that the description of some facts is skewed. The claim, for example, that there is a »secret meta-password« used to access systems is incorrect. Furthermore, the attack scenario described is »highly complex and requires that any potential hacker has extensive experience«. Nor does SMA see any threat of potential grid instability – even »in the highly unlikely case of a simultaneous attack on the devices concerned«. The inverter capacity sold by SMA in the household array segment of 17 gigawatts encompasses the full capacity sold on the world market. The devices concerned generate only a fraction of this.

However, SMA is ignoring one problem: If hackers want to paralyze the power grid, then they won't limit their attack to SMA devices. The hackers will infiltrate as many devices as necessary to ensure that simultaneous shutdown will exceed the standby power capacity (approximately three gigawatts in Europe). Whether SMA inverters account for a 20 percent of 80 percent share of devices affected in a scenario like this is of no consequence for the hacker attack.

According to SMA, it is working together with the National Cyber Security Center (NCSC) in the Netherlands on a report of device security. »Additional technical information to supplement Willem Westerhof's descriptions« will be released in August (after going to press), as SMA spokesperson Anja Jasper has explained. ●

SMA security guidelines

Inverters that are not connected to the Internet are not, logically, vulnerable to hacker attacks, just like those using a router with a firewall to connect to the web (and as long as the firewall is kept up-to-date). The Cyber Security Guidelines released by SMA can be found on the Internet (www.sma.de, enter the search term »Cyber Security« in the search field). Other inverter manufacturers have similar guidelines.

Further information
Contacts page 79

EXHIBIT 15

USITC GC-H-190 (U.S.Intern.Trade Com'n), 1984 WL 273443 •

United States International Trade Commission (U.S.I.T.C.)
*1 Memorandum

REMEDY RECOMMENDATIONS IN SECTION 201 CASES

USITC GC-H-190
July 3, 1984

Law Library References: 19 U.S.C. 2251, remedy. Wang No. 8006B.

TO: THE COMMISSION

FROM: General Counsel

The purpose of this memorandum is to provide a general but in-depth discussion of the issue of remedy in section 201 cases. It is to be used in conjunction with the carbon steel and copper cases, both of which resulted in affirmative injury determinations and are the subject of remedy findings. A first draft of this memorandum was circulated on June 25.

The contents of our memorandum are as follows:

TABULAR OR GRAPHIC MATERIAL SET FORTH AT THIS POINT IS NOT DISPLAYABLE

PART I—GENERAL ISSUES

1. Overview

Section 201(d)(1) provides that if the Commission makes an affirmative injury determination under section 201(b)(1) it shall—
(A) find the amount of increase in, or imposition, of, any duty or import restriction on such article which is necessary to prevent or remedy such injury, or

(B) if it determines that adjustment assistance under chapters 2, 3, and 4 can effectively remedy such injury, recommend the provision of such assistance.

Thus, the Commission can recommend either import relief under (A) or adjustment assistance under (B), but not both. The Commission would recommend adjustment assistance 'in lieu of import relief in circumstances in which the Commission determines that such assistance would be a more effective remedy to the serious injury than import relief.' [1]

As a matter of policy the Commission should recommend only such relief as the President is authorized to provide under section 203 (assuming that the Commission does not recommend adjustment assistance). A recommendation of relief inconsistent with the President's section 203 authority, while not expressly prohibited by the statute, would not provide the President with the guidance intended by Congress. In addition, prior to June 1983 when the legislative veto provision of section 203(c) was still enforceable, any recommendation inconsistent with the President's authority would have posed a dilemma for Congress in the event it sought to direct the President to impose the Commission recommended relief

because Congress, if it chose to act, would have had to direct the President to proglaim relief it had not intended he proclaim.

Section 203(a) provides that the President may—
(1) proclaim an increase in, or imposition of, any duty on the article causing or threatening to cause serious injury to such industry;

(2) proclaim a tariff-rate quota on such article;

(3) proclaim a modification of, or imposition of, any quantitative restriction on the import into the United States of such article;

(4) negotiate orderly marketing agreements with foreign countries limiting the export from foreign countries and the import into the United States of such articles; or

(5) take any combination of such actions.

These forms of relief, which are discussed at length later in this memorandum, are subject to certain limitations set forth in section 203(d) (tariffs may not be increased more than 50 percent above the present level, and quotas must allow entry of at least that quantity or value of goods entered during the most recent representative period) and section 203(h) (relief may provided for up to 5 years, but is to be phased down to the extent feasible if for more than 3 years).

***2** The President has 60 days after receiving a Commission report recommending import relief to determine what relief, if any, he will provide[2] and to advise Congress.[3] Relief must be proclaimed and take effect within 15 days of the President's determination, but within 90 days if the President announces his intention to negotiate orderly marketing agreements.[4] The President may, within 15 days of receiving a Commission report, request additional information from the Commission. The Commission has up to 30 days to furnish such information and the President has an additional 30 days to make his determination.[5]

Section 203(c) contains a legislative veto provision permitting Congress, by means of a joint resolution approved by a majority of those present and voting in each House, to direct the President to proclaim the relief recommended by the Commission in the event the President takes no action or different action. However, this provision is considered to have been rendered unenforceable as a result of Supreme Court decisions in June 1983 involving legislative vetoes.[6]

In the event the Commission recommends the provision of adjustment assistance, the President is to direct that the Secretaries of Labor and Commerce give 'expeditious consideration' to petitions from worker, firms, and communities.[7] However, workers, firms, and communities would still have to file such petitions, something they could have done without a section 201 investigation.

2. Commission's role and President's role contrasted

The Commission and President have different roles. The Commission's task is to find the amount of relief 'necessary to prevent or remedy . . . injury'[8] (assuming it does not recommend adjustment assistance), while the President's task in effect is to consider the 'national economic interest',[9] which may not be the same as that of the injured industry.

In deciding whether to provide relief and what method and amount, the President is to take into account a list of nine considerations set forth in section 202(c) of the Trade Act. These considerations include information concerning

applications for adjustment assistance, industry efforts to adjust to import competition and the effectiveness of import relief in this regard, the effect of relief on consumers and domestic competition, the effect of relief on U.S. international interests, the impact on other U.S. industries of the possible payment of compensation to trading partners, the geographic concentration of imports, the extent to which the U.S. market is the focal point for imports due to restraints in third world countries, and the economic and social costs which would be incurred by taxpayers, communities, and workers if relief were or were not provided.

The Commission is not directed to take into account these considerations, although it is when it renders advice under section 203(i). Several of the conditions would appear to be at variance with the Commission's task of finding the 'necessary' relief. In addition, some, like that involving compensation, may not be appropriate for public comment at this point in time because, as in the case of the compensation consideration, such comment could encourage claims for compensation. Two Commissioners submitted such public advice in early section 201 cases, including advice on compensation and products which could be considered for duty reductions as part of a compensation package, but USTR advised that such advice, especially on issues like compensation, was not wanted.

*3 We believe that the Commission should be aware of these considerations and may take certain of them into account in determining what relief is 'necessary.' While the Commission's focus must be on the relief necessary to prevent or remedy injury, the Commission often has before it several alternative forms of relief which would provide the desired result. In selecting a form of relief, it seems appropriate to consider, among other things, the impact that the different forms would have on consumers and competition.

3. Must there be a remedy?

The nature and extent of the Commission's obligation to recommend relief after making an affirmative determination under section 201(b)(1) is fairly clear. The language of section 201(d)(1) is mandatory, not directory:
If the Commission finds with respect to any article, as a result of its investigation, the serious injury or threat thereof described in subsection (b), it shall—
(A) find the amount of the increase in . . . [emphasis added].

The legislative history of section 201(d)(1) and that of its predecessor, section 301(e) of the Trade Expansion Act of 1962, provides strong support for the proposition that the Commission is required to recommend appropriate relief if it finds the requisite injury:
(T)he Committee feels strongly that the Commission ought to reach a clear, definitive majority view or the nature of the remedy that is most suitable to the injury found. [10]

This section [201(d)(1)] further requires the Tariff Commission, if it finds with respect to any article, as a result of its investigation, the serious injury or threat thereof described in section 201(b), to find the amount of the increase in, or imposition of, any duty or other import restriction . . . (emphasis added) [11]

[S]would the Commission find serious injury, it is required to make a finding as to the amount of tariff adjustment which is necessary to prevent or remedy such injury. [12]

Prior Commission practice offers further support for the obligatory nature of the Commission's responsibility under section 201(d)(1). A review of all escape clause cases since the passage of the Trade Expansion Act of 1962 reveals that whenever half or more of the participating Commissioners found injury, a recommendation of relief accompanied it.

Section 206.6(a) of the Commission's rules, which describes the contents of the Commission's Report to the President, addresses the issue, but does not offer much guidance. It reads in relevant part:

> Such report shall also include, in the case of a finding that such criteria are satisfied, the Commission's finding, or recommendation, if one is made under section 201(d)(1), with respect to the remedy for any injury it finds.

Section 201(d)(1) contains some language that may allow for two narrow. exceptions to an absolute duty to recommend relief whenever the requisite injury is found. Section 201(d)(1) states that the Commission is to find the 'amount' of duty or import restriction which is necessary 'to prevent or remedy such injury.' There is no source material which explains the meaning of the above language. However, the plain meaning would indicate two exceptions:

***4** (1) Where injury was adequately proven, but the amount of injury or the necessary amount of relief defied quantification, or

(2) Where none of the recomendations available to the Commission would prevent or remedy the injury.

In both situations, the Commission would have made negative recommendations based on criteria implicit in the statute. If such a case did arise, it would be appropriate to state in the report to the President that no remedy was ascertainable or that no recommendation available to the Commission would prevent or remedy the injury.

Clearly, both exceptions are very narrow. Rarely could injury adequately be proven without enough quantifiable information to be able to find the amount of necessary relief. Even rarer would be the case where a tariff or quota based relief would not, at least to some extent, 'prevent or remedy such injury.' To make an affirmative finding under section 201(b)(1), the Commission must find that imports have been a substantial cause of that injury. In all but the rarest of cases, it would be inconsistent to find simultaneously that imports were a substantial cause of the injury and that import relief would not alleviate the problem.

A distinction should be made at this point, however, between the situation where none of the recommendations available to the Commission would prevent or remedy the injury, and the situation where one of the available recommendations would be an effective remedy, but none of the available measures is desirable or otherwise 'the remedy of choice.'

Several policies underlie the mandatory nature of section 201(d)(1). First, the Congress intended that the Commission provide the President expert, technical guidance on the matter. [13] Secondly, Congress' purpose in passing these provisions was to protect United States industry. Congress took the position that a domestic industry that has suffered 'serious injury, or the threat thereof' should not be denied relief for extraneous reasons. [14]

It is worthy of note, that although the Commission has a nearly absolute duty to recommend a remedy if the prerequisites of section 201(d)(1) are met, it is not required to declare import restrictions on all classes of items investigated and injured, if a restriction on only some of the items will prevent or remedy the injury. [15] Such action is justified by the fact that the amount of the remedy need be only that which is 'necessary to prevent or remedy such injury.' [16]

4. May negative finding Commissioners vote on remedy?

Traditionally, when the Commission has made an affirmative injury finding, dissenting (negative finding) Commissioners have not recommended relief. They have either not participated in the remedy stage or have voted 'no remedy.' They have done so on the theory that their votes on injury and remedy are linked and should be consistent. However, in

recent years several negative finding Commissioners have recommended relief. They have argued that votes on injury and remedy are separate and independent, have cited language in the Trade Act that Commissioners ought to vote in escape clause cases and that Commission remedy recommendations should be 'clear' and 'definitive', have cited views of the House Ways and Means Subcommittee on Trade set forth in the legislative history of the Tax Reform Act of 1976 specifically stating that negative finding Commissioners should vote on remedy, and have noted the absence of any express prohibition on such participation. [17]

*5 Nothing in the Trade Act or its legislative history specifically addresses the subject of remedy votes by negative finding Commissioners. Section 201(d)(1) states that '[i]f the Commission finds . . . serious injury or threat thereof . . . it shall' find the necessary relief or recommend adjustment assistance. It does not say which Commissioners 'shall' do this. The Finance Committee expressed concern about Commissioners not participating in injury determinations under the 1962 act, especially when such non-participation resulted in the Commission vote being a 'no decision tie vote.' [18] In addition, the Finance Committee urged the Commission 'to reach a clear, definitive majority view on the nature of remedy that is most suitable to the injury found.' [19]

The Subcommittee on Trade of the House Committee on Ways and Means addressed the issue in 1976 in the course of considering options for increasing the Congressional role in cases involving divided Commission remedy votes. The subcommittee members and other members of Congress were frustrated by the fact that the Commission had found injury to the footwear industry by a vote of 6 to 0 but that no more than three Commissioners were on any remedy recommendation, there was thus no 'Commission' recommendation, and Congress was unable to use its legislative veto authority.

The Ways and Means Committee report discussing certain options stated—
All Members of the Subcommittee on Trade rejected the first proposal [that only affirmative finding Commissioners be eligible to vote on remedy]. While as a matter of custom Commissioners have tended to abstain from voting on remedy where they have not found affirmatively on injury, there is no basis for this in the law. Moreover, it was the sense of the meeting of the Subcommittee on April 28 that a Commissioner should participate in both aspects of decision-making in import relief cases. Indeed, a majority of Subcommittee Members, for one reason or another, agreed that a Commissioner should not be excluded from voting on remedy because he or she had not found affirmatively on injury. The Full Committee took no position on these issues. [20]

However, it should be noted that this viewpoint of the subcommittee carries little weight in legal terms because, not only did the full committee not take a position on this matter, but Congress did not make any change in the law regarding Commission remedy voting. [21]

This subcommittee position was reportedly repudiated in 1977 by the subcommittee's chairman, Congressman Vanik. Mr. Vanik was not a member of the subcommittee in 1976. Mr. Vanik expressed the view that negative finding Commissioners would be likely to join with Commissioners recommending less restrictive remedies and thus 'water down' the Commission remedy. [22]

Because the law is silent on the question and good arguments can be made both for and against voting on remedy by negative-finding Commissioners, we believe that the decision on whether to participate is up to the individual Commissioners. On the one hand, a negative finding Commissioner has the same basic information as an affirmative finding Commissioner and thus knows the extent to which imports have increased and what the indicators of injury are. Arguably, a negative finding Commissioner should be able to determine fairly well the level of import-caused injury which the affirmative finding Commissioners have found. In addition, the legislative history makes it clear that Congress

wants the Commissioners to vote in cases and make 'clear, definitive' remedy recommendations. However, it is unclear whether Congress had this kind of voting in mind.

*6 On the other hand, there is an argument for not voting. There is a clear link between an injury vote and a remedy vote because the statute requires that the relief be that amount which is 'necessary' to prevent or remedy injury. It is somewhat illogical for a Commissioner to recommend relief for an industry he or she has found ineligible for such relief. Furthermore, a Commissioner seeking to step into the shoes of an affirmative finding Commissioner arguably will be unable to do so because he or she will not know, having gone negative, the extent to which the industry was injured by increased imports (as opposed to other factors) and how much relief is needed to offset that injury.

5. Must the remedy cover all products subject to an affirmative finding or may some be exempted?

The Commission is to recommend only that relief which is 'necessary' to prevent or remedy injury. It should not recommend relief on products or subproducts where relief is not necessary. The providing of more than the necessary relief by the President could result in higher claims for compensation or additional retaliation by adversely affected trading partners.

The Commission has exempted specific products or subproducts from relief when it found that the particular items were not produced in the United States, when it found that domestic production was periodic or small relative to U.S. needs, or where relief was not needed for other reasons. For example, in the 1983 stainless and alloy tool steel case, the Commission recommended that nine types or grades of specialty steel be exempted from import quotas and that the first 6000 short tons of a tenth category be exempt on the ground that such types or grades were not domestically produced, were produced only periodically, or were produced in insufficient quantities. [23]

In the second footwear case, the Commission recommended that athletic footwear valued at over $8 per pair be exempted because it consisted primarily of special purpose and high-priced athletic footwear, it accounted for only about 15 percent of athletic footwear imports, and over $8 per pair imports were declining. [24] In the Clothespins case, the Commission recommended that spring clothespins over $2.10 per gross be exempted because imports of such clothespins were 'insignificant', and they recommended that nonspring clothespins be exempted because 'the long-term trend away from nonspring clothespins by U.S. producers and the consuming public would be unlikely to be reversed in the future, even if [subject to] the remedy . . ..' [25]

6. Should the Commission take into account relief already provided and additional relief sought under other statutory authorities?

The Commission should take into account relief already provided under other statutory authorities such as the antidumping and countervailing duty provisions, but it should disregard as speculative the possibility that additional relief could be provided as a result of pending cases under other provisions.

*7 As stated above, the Commission is to find the amount of relief 'necessary' to prevent or remedy injury. The providing of more relief than necessary could give rise to additional claims for compensation or additional retaliation. The Commission should take into account relief already in effect and, to the extent feasible, should recommend relief compatible with it. [26]

Pending cases under other statutory provisions generally should be disregarded. If relief is ultimately provided as a result of those cases, and it is a form of relief preferred over escape clause relief (e.g., no compensation is required), the President could, after receiving Commission advice under section 203(i), reduce the escape clause relief to the extent appropriate. [27]

7. Can continuation of relief be tied to industry actions?

While neither the Commission nor the President has ever tied the continuation of relief to specific action taken on the part of industry, nothing in the statute prevents this from being done. The statute and its legislative history indicate that industries are to take affirmative steps to adjust and become competitive. As we pointed out in our memorandum of June 18 to Chairwoman Stern on the subject of industry adjustment,[28] the statute refers to adjustment numerous times,[29] and the Commission is to report on industry efforts to compete with imports in its section 201 report[30] and on industry efforts to adjust in any report under section 203(i)(2) or (i)(3).[31] The Finance Committee made it clear that '[t]he escape clause is not intended to protect industries which fail to help themselves become more competitive through reasonable research and investment efforts, steps to improve productivity and other measures that competitive industries must continually undertake.'[32]

A procedure for monitoring industry actions is already in place. Section 203(i)(1) requires that the Commission during the relief period 'keep under review developments with respect to the industry concerned (including the progress and specific efforts made by the firms in the industry concerned to adjust to import competition) . . .', and Presidential proclamations setting forth relief generally require the Commission to make quarterly and annual reports on industry developments. Thus, the Commission already has a specific monitoring role during relief periods.

In view of Congress' intent that the industry adjust and become more competitive during the relief period, it would not seem unreasonable to condition the continuation of relief on an industry's taking action. This action could involve implementation of a plan to modernize facilities, hold down wage increases, etc., and would depend upon the nature of the industry's problems. However, one would not want a plan to be too restrictive because market conditions can change significantly over a 3 to 5 year period.

8. Special finding required by CBI legislation

***8** Section 213(e)(2) of the Caribbean Basin Economic Recovery Act,[33] which provides duty-free entry for certain imports from Caribbean Basin countries, requires that the Commission 'state whether and to what extent its [relief] findings and recommendations apply to such articles when imported from beneficiary [Basin] countries' (assuming such Basin-country imports are eligible for duty-free treatment).

Under the CBI legislation, duty-free treatment for Basin goods is not automatically suspended when the articles becomes the subject of an import relief action. The President could suspend or reduce the preference during the relief period. Under the GSP legislation, on the other hand, duty-free GSP treatment is required to be suspended during the relief period.[34]

9. Can relief be adjusted to offset changes in inflation, consumption, world prices, etc?

Relief can be adjusted to offset changes in inflation, consumption, world prices, etc., provided it does not increase product coverage or the effective level of relief. Relief is to be set at the highest necessary level at the outset of the relief period and any changes should involve a lessening of relief. Section 203(h)(2) provides that any relief provided for more than 3 years is to be 'phased down' '[t]o the extent feasible' no later than the end of the third year, and section 203(h)(3) provides that relief may be extended, but 'at a level of relief no greater than the level in effect immediately before such extension . . ..' Thus, the statute appears to prohibit increases in relief in the form of (1) product coverage, including higher priced articles of the same kind but not originally covered by relief, and (2) increases in duties or reductions in quota levels.

However, we believe that there are some instances in which product coverage can appear to be expanded, tariffs appear to be raised in ad valorem terms, or quota levels appear to be reduced without violating the above rules. For example, we believe that product coverage based on price (e.g., all athletic footwear under $5 per pair) can be adjusted in accord

with an indicator, such as the Consumer Price Index, to take into account inflation. While the product coverage would appear to increase with each adjustment (e.g., to all athletic footwear under $5.25 as a result of a 5 percent inflation adjustment), product coverage in reality would remain the same because the same basic product would continue to be subject to relief. The athletic footwear formerly costing $5 and up would in reality now be costing $5.25 and up.

We believe that a tariff in the form of a specific rate of duty (e.g., 5 cents per pound) would not violate the spirit of section 203(h) when prices are falling (and the ad valorem equivalent rate of duty is increasing) because the stated tariff would not have increased.

We also believe that a market share quota which could be adjusted upwards or downwards in accordance with changes in consumption would not involve an increase in restrictions when consumption and thus quotas were falling because the market share accorded to imports would be unchanged. Market space quotas are discussed in further detail in part II of this memorandum in the section discussing quantitative and other import restrictions.

10. Can relief be discriminatory?

***9** Section 203(k)(1) of the Trade Act in effect provides that relief can be discriminatory. Section 203(k)(1) provides as follows—
Actions by the President pursuant to this section may be taken without regard to the provisions of section 126(a) of this Act but only after consideration of the relation of such actions to the international obligations of the United States.

Section 126(a) of the Trade Act provides as follows—
Except as otherwise provided in this Act or in any other provision of law, any duty or other import restriction or duty-free treatment proclaimed in carrying out any trade agreement under this title shall apply to products of all foreign countries, whether imported directly or indirectly.

However, section 203(g)(1) provides that the President, in imposing quantitative restrictions, is to issue regulations providing for their 'efficient and fair administration,' and section 203(g)(3) provides that such regulations
shall, to the extent practicable and consistent with efficient and fair administration, insure against inequitable sharing of imports by a relatively small number of the larger importers.

A reading of these several provisions together suggests that relief may be discriminatory in circumstances when fair and efficient administration and equitable sharing so require.

Discrimination is a very sensitive issue. The United States generally takes the position that import duties and other import restrictions should be applied in a non-selective, nondiscriminatory manner. Questions regarding discrimination are most likely to arise in the case of remedies involving tariff-rate quotas and quantitative restrictions, especially when country-by-country allocations are to be recommended. When faced with the issue, we believe the Commission should recommend nondiscriminatory relief, but point out any problems it sees in its recommendation. We believe that the discrimination issue is one that is best left to the President.

The issue of discrimination is further discussed in part II of this memorandum, infra, in the sections involving tariff-rate quotas and quantitative and other import restrictions.

11. Period of relief and phasing down of relief.

Section 203(h)(1) provides that relief may be provided for an initial period of up to 5 years. However, relief provided for more than 3 years is, '[t]o the extent feasible', to be 'phased down' during the period of relief, with the phasing down to begin no later than the beginning of the fourth year of relief. [35] Relief may be extended for one period of up to 3 additional years, but at a level no greater than that existing immediately before the extension. [36]

In practice the Commission generally has recommended that relief be for a 5-year period, [37] although it has recommended 3 years of relief in several instances. [38] In recommending relief for a period of more than 3 years, the Commission has not always found it feasible to phase down relief. [39]

***10** Commissioners recommending relief for an initial period of less than 5 years have not generally explained why they believe a shorter period will be sufficient. They generally have justified the length of the relief period on the ground that it would provide 'a sufficient period for the industry to adjust to changing conditions of competition.' [40] Commissioners have been more likely to explain why a 5-year relief period is necessary. In the motorcycles case Commissioners Eckes and Haggart emphasized that 5 years of relief was needed to permit the industry to work off large inventories of imports and allow the domestic industry to carry out an ambitious modernization program. [41] In the television case the Commission found that the serious injury was such that it 'required the longest adjustment period possible.' [42]

Commissioners have not recommended phasing down relief in the case of 5-year relief recommendations when they considered such phasing down not to be feasible. In the first stainless flatware case the Commission found such phasing down 'not feasible' in view of the 'chronic nature of the distrees caused to domestic producers by imports.' [43] In the copper case the Commission recommended against a phase down in view of 'substantial supplies of copper overhanging the domestic market' and the fact that 'it is likely to take some time for the conditions created by the oversupply to be corrected by the imposition of an import restriction . . ..' [44]

PART II: FORMS OF RELIEF

1. Tariffs

Section 201(d)(1)(A) authorizes the Commission to recommend, among other things, 'any duty' which will prevent or remedy serious injury. The term 'duty' is defined in section 601(1) of the Trade Act as including 'the rate and form of any import duty, including but not limited to tariff-rate quotas.'

Section 203(d)(1) imposes a limit on any duty increase. A duty cannot be increased to 'a rate which is more than 50 percent ad valorem above the rate (if any) existing at the time of the proclamation.' This means that a tariff of 10 percent ad valorem could be increased to a maximum of 60 percent ad valorem. [45]

The tariff could be in the form of an ad valorem rate (e.g., 10 percent ad valorem), a specific rate (e.g., 5 cents per pound), or a compound rate (e.g., 5 cents per pound plus 10 percent ad valorem). Most U.S. duty rates are expressed in ad valorem terms. Many specific rates have been converted to ad valorem rates in recent years because high levels of inflation were reducing their effectiveness. Specific rates traditionally were used for commodity-type products which tended to fluctuate in price. They tended to provide more portection when prices were low (e.g., due to excess world supply) and less when prices were high (e.g., due to shortages) and less protection was needed.

The 50 percentage point limit of section 203(d)(1) applies to all forms of tariffs. Any specific or compound rate considered would have to be converted to an ad valorem equivalent to insure that it does not exceed 50 percent. Special procedures and definitions for such conversions are set forth in section 601(3) and (4) of the Trade Act.

*11 When recommending relief in the form of a tariff, Commissioners generally have recommended relief in the form of an ad valorem tariff, even when the imported article was a commodity and the existing tariff was in the form of a specific rate. [46]

Commissioners generally have favored tariff relief over relief in the form of quotas bacause they believe tariffs are less likely to have a distortive effect in the marketplace. [47] Tariffs are especially preferred when the subject articles are not fungible and vary considerably in value. [48] Commissioners have recommended quotas when they believed that (1) importers and foreign producers were likely to absorb a tariff increase to varying degrees, making the tariff ineffective, making it effective against imports from some countries but not others, or making it difficult to determine whether or not a tariff would be effective, or (2) a 50 percent increase would be inadequate. [49]

Commissioners have factored into their tariff recommendations the likelihood that importers and foreign producers would absorb some part of the increase. For example, in the television case they assumed that about half the recommended increase of 20 percent ad valorem would be absorbed. [50] Commissioners have also tended to recommend a larger tariff increase for the first year of relief in the belief that the absorption rate was likely to be highest in that year as importers moved to protect their market share.

2. Tariff-rate quotas

Tariff-rate quotas are a form of tariff, not a form of quota. A tariff rate quota is a multiple-rate tariff. For example, the first 1,000 units of an article may enter at one tariff rate and all subsequent (i.e., over-quota) imports may enter at a higher rate. Thus, the word 'quota' refers to the number of articles that may enter at a given rate of duty rather than to an absolute restriction on the number or value of articles which may enter the country.

A tariff-rate quota system could involve, more than two different rates of duty and thus two or more 'quotas.' [51] However, tariff-rate quotas containing three or more tariff rates and two or more quotas are difficult to administer. The section 203(d)(1) limit of 50 percent ad valorem on tariff increases applies to tariff-rate quotas.

Tariff-rate quotas have some of the attributes of quotas. For example, they may be allocated on a country-by-country basis, and limits may be set on the percentage of within-quota imports which can enter at a lower rate in a given calendar quarter. However, the recent representative period requirement of section 203(d)(2), which is applicable to import quotas, does not apply to the size of the quota in a tariff-rate quota. The tariff-rate quota may be set at any amount.

When tariff-rate quotas are allocated on a country-by-country basis, allocations should be non-discriminatory and based on historic market shares. Such allocations would generally be based on import shares in the most recent representative period, and the shares for all countries would be based on the same period (i.e., one would select a period and allocate on the basis of country shares during that period). Article XIII of the GATT, which provides that quantitative restrictions are to be administered in a non-discriminatory manner, also provides that the article is to apply to tariff quotas (article XIII, para. 5). [52]

*12 Commissioners have sometimes recommended tariff quotas instead of tariffs when they have sought to discourage imports over a certain level, [53] but there does not appear to be a consistent approach in this regard. [54] Commissioners generally have recommended that the present MFN rate apply to within-quota imports and that a higher rate apply only to over-quota imports. [55] When one group of Commissioners has recommended tariffs and a second group has recommended tariff quotas, the group recommending tariff quotas has generally recommended higher rates than the

former,[56] no doubt because the average rate for within-quota and over-quota imports would be less than the over-quota rate.

3. Quantitative and other import restrictions

Section 201(d)(1)(A) provides that the Commission can recommend, in addition to or in lieu of a duty, 'any . . . import restriction' necessary to prevent or remedy injury. The term 'import restriction' is defined in section 601(2) of the Trade Act as including 'a limitation, prohibition, charge, and exaction other than duty, imposed on importation or imposed for the regulation of importation. The term does not include any orderly marketing agreement.'[57] In practice, the import restrictions recommended by the Commission have always involved a quantitative restriction.[58]

Section 203(d)(2) provides a limit on the level to which imports can be reduced under a quantitative restriction. It provides as follows—
Any quantitative restriction proclaimed pursuant to subsection (a) or (c) and any orderly marketing agreement negotiated pursuant to subsection (a) shall permit the importation of a quantity or value of the article which is not less than the quantity or value of such article imported into the United States during the most recent period which the President determines is representative of imports of such article.

In the text immediately below, we discuss the issues of representative period, country-by-country vs. global quotas, market share quotas, and retroactive quotas.

Representative period—Any quota permit the entry of at least that quantity of imports entered during 'the most recent period which the President determines is representative of imports of such article' (sec. 203(d)(2)). Generally, this period would not include the most recent 2 or so years because these would be the years when imports were causing injury and they thus would not be 'representative.' The period need not be recent but only 'the most recent' period. Commissioners generally have found the representative period to be of 2 to 5 years duration and frequently have included a business cycle.

It is possible in some cases that there may be no 'most recent' 'representative' period within the meaning of section 203(d)(2) which might form the basis for establishing a quota. Such a situation may exist where Commissioners conclude that, for a period of many years, imports have been held artificially low or have been permitted to rise to artificially high levels as a result of import controls or other nonmarket factors. The controls or factors might have the effect of so distorting import levels as to make it unlikely that any 'recent' period was 'representative' of anything. In such an event, the Commission may wish to fashion its own quota, explaining that there is no 'recent' 'representative' period and giving the basis for its recommendation.

*13 There is precedent for such action. In investigation No. TA-201-16, Sugar, the Commission recommended quotas but did not find a representative period. Only three of the five affirmative-finding Commissioners addressed the issue. The three noted that import quotas under the Sugar Act had been in effect on sugar during the 40-year period prior to the end of 1974 and concluded that neither this period or part thereof nor the 2 years subsequent to expiration of the act could be considered representative.[59] There is precedent under other statutory authority as well. In a similar situation involving an import limitation on dried milk mixtures under section 22(b) of the Agricultural Adjustment Act (7 U.S.C. 624), the President found that there was 'no representative period for imports' of the subject dried milk mixtures and thereupon proclaimed a zero import limitation which he found necessary to carry out the statutory objective.[60]

The representative period generally would not include the years in which the domestic industry was injured. The purpose of an import remedy under section 201 is 'to prevent or remedy serious injury . . . to the industry in question and to facilitate the orderly adjustment to new competitive conditions by the industry in question . . ..' If the President imposes

a quantitative restriction base upon a period in which the domestic industry was seriously injured by imports, the serious injury may continue and the domestic industry will not be able to adjust to import competition. Congress appears to have envisioned that the representative period would not have included the most recent year or two when imports were likely to have been the highest. The Finance Committee states with regard to section 203(d)(2):

> This section would further provide that any quantitative restriction and any orderly marketing agreement negotiated pursuant to the authority granted must permit the importation of a quantity of value of the article which is not less than the quantity or value of the article imported into the United States during the most recent period which the President determines is representative of such article. The Committee feels that this section should not be construed to mean that there could not be any cut-back in imports from the level existing when injury is found to exist. [Emphasis added.[61]

The Senate Finance Committee, therefore, also recognized that restrictions should be based on a representative period that would not allow serious injury to the domestic industry to be perpetuated. Finally, if the domestic producers have been seriously injured by a surge in imports, this period is probably not representative of normal imports.

At the same time, so long as the domestic industry has not been seriously injured during the representative period and the resulting quantitative restrictions will protect the domestic industry sufficiently to enable it to adjust to import competition, we do not believe that the chosen representative period has to be free from the taint of any injury to the domestic industry.

***14** Country-by-country allocation.—The Commission also has the discretion to allocate market shares to the various countries. Since the President has the authority to divide a quota among the various countries, the Commission may wish to give the President guidance in this matter. Commissioners have recommended such country-by-country allocations in a number of past investigations.[62]

Article XIII(2)(d) of the GATT also states that in imposing an import quota that most closely approximates the shares which the various countries might be expected to obtain in the absence of restrictions, the contracting party shall observe the following provision:

> In cases in which a quota is allocated among supplying countries, the contracting party applying the restrictions may seek agreement with respect to the allocation of shares in the quota with all other contracting parties having a substantial interest in supplying the product concerned. In cases in which this method is not reasonably practicable, the contracting party concerned shall allot to contracting parties having a substantial interest in supplying the product shares based upon the proportions, supplied by such contracting parties during a previous representative period, of the total quantity or value of imports of the product, due account being taken of any special factors which may have affected or may be affecting the trade in the product. No conditions or formalities shall be imposed which would prevent any contracting party from utilizing fully the share of any such total quantity or value which has been allotted to it, subject to importation being made within any prescribed period to which the quota may relate. [Emphasis added.]

Section 203(g)(3) of the Trade Act reflects this GATT concern for fair allocation. Section 203(b)(3) states:

> Regulations prescribed under this subsection shall, to the extent practicable and consistent with efficient and fair administration, insure against inequitable sharing of imports by a relatively small number of the larger importers.

This provision gives the President authority to allocate a quota among various countries based on the representative period. Since the President has such authority, the Commission clearly has the authority to give the President guidance by recommending country-by-country market shares based on a representative period.

There is little guidance in the statute or legislative history concerning country-by-country quota allocations. The basic guidance is set forth in section 203(g), which says, in essence, that relief should be administered equitably. If the Commission decides to allocate quotas on a country-by-country basis, we believe that such allocations should be based on the share of imports during the most recent representative period. To use a period for country allocations which differs from the most recent representative period without a good explanation therefor, suggests either that the representative period is not in fact representative or that the Commission is being arbitrary. To select different periods for different countries (e.g., 1978-79 for Japan, 1976-77 for Germany, etc.) may also appear arbitrary and may be challenged as discriminating in favor of or against certain countries.

*15 Market share quotas.—It is unclear whether the law contemplates that relief in the form of a quantitative restriction can be tied to a specific share of U.S. consumption. Section 203, especially subsection (h) thereof, appears to contemplate that relief, to the extent it is changed during the relief period, be reduced. It can be argued that relief, when tied to domestic consumption, would be increased if consumption were falling. On the other hand, it can be argued that a quota tied to consumption would not become more restrictive as long as the share of the market imports were accorded was not reduced. The Commission recommended import quotas tied to consumption in the two stainless and alloy tool steel cases (inv. Nos. TA-201-5 and TA-201-48), but the President did not adopt those recommendations. To the best of our knowledge, the President has never provided escape clause relief tied to market share and the Commission has recommended such relief only in the two cited instances. It is our view that the law should be interpreted broadly so as to permit a quota tied to market share, coupled with an absolute quantity of imports to be allowed should total consumption fall dramatically (e.g., the larger of a market share of 15 percent or a quota of 1000 units). The arguments for and against such quotas are set forth in greater detail immediately below.

Under a market share quota the actual quantity of imports could become smaller in successive years if domestic consumption decreases. If the quantity of imports declines in succeeding years, quantitative restrictions based on market share arguably conflict with sections 203(h) and (i) which appear to contemplate that relief, to the extent it is changed during the relief period, be reduced. The arguments in favor of this view were probably best set forth in a memorandum prepared by this office in 1977 in connection with investigation No. TA-201-16, Sugar, where this office advised that the Commission should not recommend a flexible quota geared to price, supply, or consumption. This memorandum was prepared a year after the Commission recommended market share quotas in the first stainless steel and alloy tool steel case, investigation No. TA-201-5, and, while not referring to it, presumably took it into account. The memorandum stated, in pertinent part, as follows—

It would also appear, from sections 203(h) and 203(i), that any quantitative restriction or other form of import relief is to be phased out, where feasible, during the relief period. There is no provision made for increasing, during the relief period, the amount of import relief provided on an article. Thus, section 203(h)(1) provides that relief, unless renewed, shall 'herminate' in no more than 5 years; section 203(h)(2) provides that relief provided for more than 3 years 'shall be phased down' '[t]o the extent feasible'; section 203(h)(3) provides that any relief extension shall be 'at a level of relief no greater than the level in effect immediately before such extension' (emphasis added); and section 203(h)(4) provides that relief 'may be reduced or terminated' by the President when he determines, after taking into account advice received from the Commission and after seeking advice from the Secretaries of Labor and Commerce, 'that such reduction or termination is in the national interest.' Section 203(i)(2) provides for Commission advice to the President concerning 'the extension, reduction, or termination' of import relief.

*16 Conclusion.—In view of the authorities discussed above, we conclude that the Commission should not recommend a flexible quota geared to a price, supply, or consumption objective because such a quota by basic design could become more restrictive of imports and hence would be beyond the President's authority to proclaim. [63]

On the other hand, an equally persuasive argument can be made that quantitative restrictions based on domestic consumption would not violate section 203 either in practice or in spirit. First, there is no express prohibition in section 203 on restrictions based on market share. Second, such restrictions arguably are consistent with both the spirit and intent of section 203 as long as the market share accorded imports does not decline during the relief period. Third, restrictions reflecting market share have been imposed under other statutory authorities providing for quotas (e.g., quotas on certain textiles and meat pursuant to section 204 of the Agricultural Act of 1956 (7 U.S.C. 1854) and on carbon steel from the European Community pursuant to title VII of the Tariff Act of 1930).

As stated above, section 203(d)(2) requires that any quantitative restriction permit the importation of a quantity or value of imports which is not less than the quantity or value entered during the most recent period representative of imports. In order to comply with this requirement, we believe that the Commission, as it did in the prior investigation, should set a quantitative floor based on the imports during the most recent representative period. So long as this floor exists, we believe that the imposition of quotas based on market share would be in conformity with section 203.

Retroactive quotas.—In the past the Commission several times has recommended that quotas be imposed retroactively. [64] It might do so where there was a recent surge in imports or expectation of a surge, perhaps due to the pending relief case. In such instances it might recommend that a quota, which would or could not be imposed until, perhaps, August 1, be made retroactive to January 1 or April 1. The quota would apply only to imports entered after the quota went into effect; if imports already exceeded the quota ceiling, no additional imports could enter until the next quota period, but excess imports previously entered would not be affected.

The President has not imposed quotas retroactively under section 203. While we know of no legal impediment to his doing so, it is possible that one exists. It should be noted title VII of the Tariff Act of 1930 allows antidumping and countervailing duties to be imposed retroactively when certain tests involving critical circumstances are satisfied.

4. Orderly marketing agreements

While neither sections 201-203 nor their legislative history expressly prohibits the Commission from recommending OMA's, the present and predecessor statutory provisions, their legislative history, and Commission precedent (actually, the absence of any such precedent) strongly suggest that the Commission should not recommend an OMA under section 201(d)(1)(A) for at least three reasons. [65] First, it does not appear that an OMA is 'import restriction' within the meaning of section 201(d)(1)(A), the subsection of section 201(d)(1) which permits the Commission to recommend tariff or quota relief (instead of adjustment assistance). Second, the recommendation of an OMA would clearly have frustrated any Corgressional attempt under section 203(c) of the Trade Act to force the President to provide relief since there is no way in which Congress could have forced a foreign country to enter into an agreement. And third, if the Commission were to recommend an OMA, instead of a tariff or specific quota, the President would have nothing to negotiate against. [30]

*17 Before proceeding further, it is perhaps most appropriate to briefly describe an OMA. An OMA in the present context, using past OMA's as a guide, is a bilateral agreement between the United States and a foreign country in which, among other things, the foreign country agrees to limit its exports to the United States of the Subject articles to a certain level during the period of the agreement. The limitations of such agreements generally acquire the force of law for U.S. purposes through the issuance by the President, as required by section 203(e)(1) of the Trade Act, of a proclamation

limiting U.S. imports of the subject article from the agreement country to an amount equal to that and for the period provided for in the agreement.

OMA's are negotiated agreements and follow no prescribed format. A key elemant of an OMA is a quota, and the limitation of section 203(d)(2) applying to quantitative restrictions under section 203(a)(3) (i.e., the most recent representative period requirement) applies to OMA quotas as well. The quota element in an OMA may not be the only key element in the OMA. There may be special provisions for the regulation of exports by the exporting country, for review of and changes in the quota in certain circumstances, etc.

A foreign country may be eager to negotiate an OMA in lieu of having import restrictions imposed unilaterally against it. It may, for example, believe that the OMA quota will be less restrictive, because of special conditions in the OMA, than a unilateral quota. It may believe that U.S. administrative adjustment of an OMA quota is more likely in the event of a problem in the quota, perhaps as a result of the use of erroneous data in calculating the quota base. The foreign country may also prefer an OMA quota, which would be outside GATT, because it believes that other GATT members (who might have their own problems with the exporting country) would be unsympathetic to a request for GATT action and that it would therefore be better off under an OMA.

Commission recommendations are likely to be the starting point for any negotiations, whether the recommendation is for higher tariffs or quotas. The foreign country will seek something less restrictive or at least more flexible than the Commission tariff or quota. For example, it may prefer an OMA quota to tariffs because it believes that a quota would be less disruptive to its export trade.

Whether an OMA is an 'import restriction' under section 201(d)(1)(A).—Section 201(d)(1) of the Trade Act provides that the Commission, if it makes an affirmative determination and does not recommend adjustment assistance, is to find the 'duty or import restriction' necessary to prevent or remedy the injury. The question then is whether an OMA is an 'import restriction' which the Commission is authorized to recommend. (A duty is, of course, a form of import restriction; an OMA would not, unless its concept were substantially changed, take the form of a duty.)

***18** It appears from the Trade Act, its legislative history, the predecessor statute, and the whole statutory framework that Congress never intended the Commission to recommend the negotiation of OMA's. If the Commission were to recommend OMA's as the only remedy, such action would have effectively frustrated any Congressional use of its 'override' authority in section 203(c) since Congress, even if it could have forced the President to negotiate an agreement, could not have forced a foreign government to negotiate and enter into an agreement.

Section 601 of the Trade Act sets forth definitions of general applicability for the entire statute. Section 601(1) defines the term 'duty' and section 601(2) defines the term 'other import restriction.' The section 601(2) definition, which expressly exclude orderly marketing agreements from inclusion within the meaning of the term 'other import restrictions,' reads as follows—

The term 'other import restriction' includes a limitation, prohibition, charge, or exaction other than duty, imposed on importation or imposed for the regulation of importation. The term does not include any orderly marketing agreement. (emphasis added)

The definitions in sections 601(1) and 601(2) are taken virtually verbatim from the definition set forth in section 405(2) of the Trade Expansion Act of 1962 (76 Stat. 903). In the Trade Act of 1974, Congress took the old definition and divided it into two subsections, section 601(1) and 601(2). In addition. Congress added to the definition of 'other import restriction' the sentence underscored above which states that the term does not include an OMA.

Section 601(2) would clearly dispose of the issue at hand, but for the inclusion of 'other' in the defined term. The language of section 201(d)(1)(A) is simply 'import restriction.' Other provisions of the Trade Act, as well as section 301(e) of the Trade Expansion Act of 1962 (the predecessor of section 201(d)(1)(A)), use the term 'other import restriction.' [66]

Section 301(e) of the TEA reads:

> Should the Tariff Commission find . . . the serious injury or threat thereof described in subsection (b), it shall find the amount of the increase in, or imposition of, any duty or other import restriction on such article which is necessary to prevent or remedy such injury and shall include such finding in its report to the President. (Emphasis added.) (76 Stat. 885.)

When Representatives Ullman and Schneebeli introduced the original version of the Trade Act of 1974 into the House of Representatives, section 405(2) of the TEA had been changed to section 601(2) as it reads today (defining the term 'other import restriction,' and specifically excluding orderly marketing agreements from being within the meaning of that term). However, their version of section 201(d)(1) retained in relevant part the language of the old section 301(e). It read:

> (I)f the Tariff Commission finds . . . the serious injury or threat thereof described in subsection (b), . . . it shall find the amount of the increase in, or imposition of, any duty or other import restriction on such article which is necessary to prevent or remedy such injury and shall include such finding in its report to the President. (emphasis added) [67]

***19** In this version of the bill, section 201(d)(1) and section 601(2), read together, clearly exclude an orderly marketing agreement from the recommendations available to the Commission. This version was passed by the House and forwarded to the Senate.

The Senate Finance Committee changed section 201(d)(1) to the version that was ultimately signed into law. [68] In doing so, the Committee dropped the word 'other' that had been in front of 'import restriction' in the House version of section 201(d)(1), but it left section 601(2) unaltered. However, the Committee continued to use the term 'other import restriction' in its report in explaining the type of relief which the Commission would recommend under section 201(d)(1)(A). [69] The only explanation given for all the changes made by the Finance Committee is that the Senate wanted to add adjustment assistance to the range of recommendations available to the Commission. [70] The House accepted the Senate's version, and the Conference Report was silent on the question of why the word 'other' was deleted from the statute. [71]

The legislative history of section 201(d)(1) does not clearly resolve the question of whether the elimination of the work 'other' was intended to provide the Commission more flexibility in fashioning its recommendations, or was merely an oversight. It is clear, however, that up until the time that the bill reached the Senate Finance Committee, an OMA was not intended to be included in the interpretation of section 201(d)(1).

The legislative history of closely related provisions provides some insight into the intended content of the term 'import restriction' and into the allocation of authority that Congress envisioned for escape clause matters.

The Congressional materials related to the Trade Expansion Act of 1962 are replete with examples of the use of 'import restrictions' and 'orderly marketing agreements' in a mutually exclusive context. For example,

> After receiving a report from the Tariff Commission containing an affirmative finding with respect to an industry, the President is authorized to adjust the tariff to a level not in excess of 50 percent above the July 1, 1934, rate of duty, or to impose additional import restrictions such as quotas, or both, alternatively, the President may seek and negotiate an orderly marketing agreement under section 352. (emphasis added) [72]

(T)he President may, as an alternative to the action authorized by section 351(a)(1) (duties or other import restrictions) . . . negotiate international agreements with foreign countries limiting the export from such countries . . . (emphasis added) [73]

The President, after receiving a report from the Tariff Commission can invoke the escape clause in trade agreements and raise tariffs to 50 percent above the 1934 rates, impose additional import restrictions, or both; or he may negotiate an 'orderly marketing agreement' with foreign countries. (emphasis added) [74]

*20 The legislative history of section 352 of the Trade Expansion Act of 1962, the provision that initially granted the President the power to negotiate orderly marketing agreements, provides some insight into the allocation of authority that Congress intended. Many of the explanations of the then new section 352 seem to indicate that Congress wanted the President to have the sole discretion to determine when an OMA was more appropriate than duties or quotas:
This authority (to negotiate OMA's) is to be exercised by the President in his discretion, instead of providing tariff adjustment under section 351 (i.e., duties or other import restrictions), when he determines such action to be more appropriate than action under section 351 to prevent or remedy the injury to the industry. [75]

A new section 352 was added to the bill giving the President discretionary authority to enter into orderly marketing agreements . . . [76]

(T)he President may, as an alternative to the action authorized by section 351(a) (duties and import restrictions) . . . negotiate international agreements with foreign countries limiting the export from such countries . . .whenever he determine that such an agreement would be more appropriate than tariff relief to prevent or remedy serious injury to the industry. [77]

This provision (section 352) does not displace the tariff relief and adjustment assistance provisions. The agreement can be negotiated whenever the President determines that such agreements would be more appropriate than imposing increased import restrictions. [78]

A review of Commission practice since the passage of the Trade Expansion Act of 1962 (when the President was first authorized to negotiate OMA's) reveals that the Commission has never recommended an OMA.

Thus, in conclusion, it appears that Congress, despite the unexplained deletion of the work 'other' in section 201(d)(1)(A), did not intend OMA's to be included among the types of import restrictions which the Commission would recommend to the President.

Congressional 'override' authority. Section 203(c) of the Trade Act provides that if, following an affirmative Commission injury determination and finding of import relief, the President takes no action or takes action different from that recommended by the Commission, Congress may by concurrent resolution disapprove the President's action and, in such event, the President is to proclaim the relief recommended by the Commission.

As noted above, if the Commission recommended the negotiation of OMA's, whether or not in specific amounts, it seems unlikely that Congress could have invoked section 203(c) to any worthwhile effect. It seems unlikely that Congress could have or would have ordered the President to negotiate in general or to negotiate a specific result (assuming in the latter event that the Commission has recommended OMA's in specific amounts) since there was no way in which Congress or the President could have forced a foreign government to negotiate or reach a given result.

*21 Something to negotiate against. Even if the Commission can recommend relief in the form of the negotiation of OMA's, such a recommendation could seriously undercut the President's ability to negotiate since he would have nothing to negotiate against. As stated above, the restrictions stemming from as OMA are negotiated restrictions. Generally the negotiating parties—i.e., the United States and a foreign government—would each give up something in arriving at their negotiated agreement. It appears that the United States often has conceded its right to impose relief more restrictive than that in the OMA in exchange for the foreign country's conceding its right to retaliate or require compensation.

5. Combination of actions

The Commission could recommend that the President take some combination of actions with respect to a given product. Thus, it could recommend that a tariff and quota be imposed simultaneously on an article. To the best of our recollection, the Commission has never recommended a combination of actions and the President has not imposed relief in this form.

Relief in the form of a combination of actions could be effective where a tariff is viewed as the preferred remedy but where the safety of a quota is desired in the event the tariff does not restrain imports at the anticipated level.

6. Adjustment assistance

If the Commission finds that adjustment assistance 'can effectively remedy' the injury, the Commission is to recommend the provision of such assistance.[79] If the Commission makes such a recommendation, the President is to 'direct' the Secretaries of Labor and Commerce to give 'expeditious consideration' to petitions for such assistance.[80] Firms, workers, and communities would still have to file petitions, something they could have done without filing a section 201 petition.

Adjustment assistance could involve supplemental unemployment and retraining benefits for unemployed workers, and technical assistance and loans of up to $1 million and loan guarantees of up to $3 million for firms. The limitations on relief for firms, and Commerce's reported budget of $25 million for this purpose, make such assistance helpful only to small firms.

A majority of Commissioners have recommended adjustment assistance in only two cases, the first mushrooms case and the shrimp case.[81] Both cases involved small producers or businesses. In the mushrooms case the Commission expressed the view that adjustment assistance, if speedily provided, would help producers modernize and become competitive faster than if import relief were provided.[82] However, Commissioners generally have expressed the view that adjustment assistance is inadequate for most industries, especially larger industries, and 'would not even be a drop in the bucket.'[83] A Commission majority has not recommended adjustment assistance since May 1976.

This memorandum was prepared by William Gearhart (rm. 209 tel. 523-0487).

Footnotes

1 Trade Reform Act of 1974: Report of the Committee on Finance . . ., S. Rept. No. 93-1298, 93rd Cong., 2d Sess., 123 (hereinafter Finance Committee Report).

2 Sec. 202(b).

3 Sec. 203(b)(2).

4 Sec. 203(e)(1).

5 Sec. 202(d). The net effect of a request for additional information is to extend the 60 day Presidential review period to a maximum of 75 days.

6 See Immigration and Naturalization Service v. Chadha, ----- U.S. ----- (1983), 51 U.S. Law Week 407 (1983); and Process Gas Consumers Group v. Energy Council, Slip Op. Nos. 81-2008, 81-2020, 81-2151, affirming without opinion Consumer Energy Council v. F.E.R.C., 691 F.2d 575 (D.C. Cir. 1982) and Consumers Union of U.S., Inc. v. F.T.C., 691 F.2d 575 (D.C. Cir. 1982). The F.T.C. case specifically treated with two-house legislative vetoes similar to that found in section 203(c).

7 Sec. 202(a).

8 Sec. 201(d)(1)(A).

9 Sec. 202(a)(1)(A). More technically, the President's task is to provide relief 'unless he determines that provision of relief is not in the national economic interest . . ..'

10 Finance Committee Report, at 123.

11 Trade Reform Act of 1974: Report of the Committee on Ways and Means . . ., H.R. Rept. No. 93-571 (93rd Cong., 1st Sess.) 1973, p. 113. (hereinafter referred to as 1974 Ways & Means Rept.) The House version of section 201(d)(1) was subsequently amended by the Senate. However, the substance of the subsection regarding the Commission's obligation to find relief was not altered.

12 Trade Expansion Act of 1962: Report of the Committee on Finance . . ., S. Rept. No. 2059 (87th Cong., 2d Sess.), 1962, p. 11. (Hereinafter referred to as 1962 Senate Finance Report.)

13 Finance Committee, Report at 121.

14 Despite the discretion and flexibility given the President in selecting the type and level of import relief, the Senate Finance Committee offered the following exposition on section 202:
(Import) relief ought not to be denied for reasons that have nothing to do with the merits of the case as determined under U.S. Law. In particular, the Committee feels that no U.S. industry which has suffered serious injury should be cut off from relief for foreign policy reasons. [Finance Committee Report, at 124.]

15 G.C. memorandum No. GC-B-340 (1978) (Determinations, Findings and Recommendations in Investigation No. TA-201-36). See In re Certain Clothespins, TA-201-36 (1978).

16 G.C. memorandum No. GC-B-340, op. cit., note 17.

17 See the views of Commissioner Alberger on remedy in Citizens Band (CB) Radio Transceivers: Report to the President on Investigation No. TA-201-29 . . ., USITC Publication 852, February 1978, at 33-37. Commissioner Alberger expressed the view that he would not participate in the vote on remedy when he found no injury. See Alberger views on remedy in Certain Stainless Steel Flatware: Report to the President on Investigation No. TA-201-30 . . ., USITC Publication 884, May 1978, at 32-33. See also the views of Commissioner Minchew on remedy in Asparagus: Report to the President on Investigation No. TA-201-4 . . ., USITC Publication 755, January 1976, at 22-24. Commissioner Stern recommended relief on imports of stainless steel plate despite a negative determination on imports of that article 'because Congress has expressed its desire that the Commission whenever possible achieve consensus in 201 cases.' See Stern footnote in views of Commissioners Stern and Haggart in Stainless Steel and Alloy Tool Steel: Report to the President on Investigation No. TA-201-48 . . ., USITC Publication 1377, May 1983, at 39, fn. 3.

18 Finance Committee Report, at 121.

19 Id., at 123.

20 Authorization of Appropriations and Administrative Matters Relating to the United States International Trade Commission: Report of the House Committee on Ways and Means to Accompany H.R. 13396 . . ., H. Rept. 94-1088, 94th Cong., 2d Sess., 1976, at 8.

21 Congress did, however, amend sec. 330(d) of the Tariff Act of 1930 (19 U.S.C. 1330(d)) to allow a remedy recommendation of three Commissioners to be a Commission recommendation for purposes of the sec. 203(c) legislative veto provision. This and other amendments were attached to the Tax Reform Act of 1976. P.L. 94-455 (title XXIV).

22 Based on our recollection.

23 Stainless Steel and Alloy Tool Steel, TA-201-48, op. cit., note 19, at 47-52.

24 Footwear: Report to the President on Investigation No. TA-201-18 . . ., USITC Publication 799, February 1977, at 17.

25 Clothespins: Report to the President on Investigation No. TA-201-36 . . ., USITC Publication 933, December 1978, at 12.

26 The Commission does not appear to have addressed this issue in previous cases and has had little opportunity for doing so. The Commission did not address the issue in the television case (TA-201-19) where it might have. Japan accounted for about half of U.S. television imports and a substantial portion of the Japanese sets were the subject of an outstanding dumping order. Five of the six Commissioners recommended a remedy in the form of a tariff, and the sixth Commissioner recommended a quota. However, three Commissioners noted in a footnote on p. A-3 of the report that Treasury generally was not appraising the imports (liquidating entries) and had not levied any dumping duties.

27 This question arose in the television case (TA-201-19), but the Commission did not address it. A section 337 case involving televisions was pending.

28 GC-H-180.

29 See, for example, secs. 201(a)(1), 202(c)(3), and 203(a) and (i).

30 Sec. 201(b)(5).

31 Sec. 203(i)(4).

32 Finance Committee Report, at 122.

33 97 Stat. 369 (1983), 19 U.S.C. 2703(e)(2).

34 See sec. 503(c)(2) of the Trade Act of 1974.

35 Sec. 203(h)(2).

36 Sec. 203(h)(3).

37 See, for example, Footwear, TA-201-18, op. cit., note 26, at 5-6; Unalloyed Unwrought Copper: Report to the President on Investigation No. TA-201-32 . . ., USITC Publication 905, August 1978, at 3; and Heavy Weight Motorcycles and Engines and Power Train Subassemblies Therefor: Report to the President on Investigation No. TA-201-47 . . ., USITC Publication 1342, at 2.

38 See, for example, Leather Wearing Apparel: Report to the President on Investigation No. TA-201-40 . . ., USITC Publication 1030, January 1980, at 3; Mushrooms: Report to the President on Investigation No. TA-201-43 . . ., USITC Publication 1089, August 1980, at 1-2; and Stainless Steel and Alloy Tool Steel, TA-201-48, op. cit., note 19, at 1-3.

39 See Stainless Steel Table Flatware: Report to the President on Investigation No. TA-201-8 . . ., USITC Publication 759, March 1976, at 18; Copper, op. cit., note 39, at 3; and Clothespins, op. cit., note 27, at 3.

40 See views of Commissioner Eckes in Stainless Steel and Alloy Tool Steel, TA-201-48, op cit., note 19, at 54. See also Commission views on remedy in Mushrooms, TA-201-43, op. cit., note 40, at 22.

41 See separate views of Commissioners Eckes and Haggart in Motorcycles, op. cit., note 39, at 17-18 and 50-52.

42 Views of Commissioners Minchew, Leonard, and Moore in Television Receivers . . ., Report to the President on Investigation No. TA-201-19 . . ., USITC Publication 808, March 1977, at 23.

43 Stainless Steel Table Flatware, TA-201-8, op. cit., note 41, at 18.

44 See remedy views of Commissioners Parker and Bedell in Copper, op. cit., note 39, at 11; See also remedy views of Commissioners Alberger and Minchew at 25, citing a 'tremendous inventory problem', with inventories 268,000 short tons too high and growing.

45 The key operative word in sec. 203(d)(1) is 'above.' If the maximum rate were to be 15 percent under this example, Congress would have used the word 'of'. See, for example, sec. 101(b)(1) of the Trade Act where the word 'of' is used in the context of a duty reduction. In addition, the statute clearly contemplates that a duty could be imposed where none exists. If 15 percent were the correct answer to the earlier example, then there could be no duty imposed on articles entering free of duty, since 50 percent of zero is zero.

46 See, for example, Ferricyanide and Ferrocyanide Pigments (Iron Blue Pigments): Report to the President on Investigation No. TA-201-11 . . ., USITC Publication 767, April 1976, at 3; Honey: Report to the President on Investigation No. TA-201-14 . . ., USITC Publication 781, June 1976, at 3; and Mushrooms: Report to the President on Investigation No. TA-201-17 . . ., USITC Publication 798, January 1977, at 3.

47 See, for example, the views of Commissioners Leonard, Minchew, and Moore in Televisions, op. cit., note 44, at 25.

48 Id.

49 See, for example, the remedy views of Commissioners Alberger and Minchew in Copper, op. cit., note 39, at 24. Commissioners generally have not spelled out to any great extent their reasons for selecting one form of relief over another, but based on our discussions with Commissioners over the years, we believe that these are the key considerations.

50 Televisions, op. cit., note 44, at 23, 46.

51 For example, the first 1,000 units may be dutiable at 10 percent, the second 1,000 at 15 percent, and all imports over 2,000 units at 20 percent.

52 Article XIII, para. 2, provides that 'In applying import restrictions to any product, contracting parties shall aim at a distribution of trade in such product approaching as closely as possible the shares which the various contracting parties might be expected to obtain in the absence of such restrictions . . ..'

53 See views of Commissioners Minchew, Parker, Moore, and Bedell in Footwear, TA-201-18, op. cit., note 26, at 16.

54 For example, Commissioner Moore and Bedell recommended tariff quotas in the second footwear case, TA-201-18, in February 1977, but recommended tariffs in the first footwear case, TA-201-7, in February 1976.

55 See, for example, Footwear, TA-201-18, op. cit., note 26, at 4-5.

56 For example, in the second footwear case, Commissioners Minchew, Parker, Moore, and Bedell recommended an over-quota tariff of 40 percent ad valorem for the first 3 years, but Commissioner Leonard, who recommended tariffs, recommended a 30 percent rate in the first 2 years and lesser rates thereafter.

57 Section 601(2) uses the term 'other import restriction', but section 201(d)(1)(A) does not use the modifier 'other'. The failure to use this modifer in section 201(d)(1)(A) probably has no significance. For a further discussion of this omission, see the section of this memorandum on order by marketing agreements, infra.

58 Section 203(a), which lists the forms of relief the President can provide, authorizes the President to impose a 'quantitative restriction' (sec. 203(a)(3)) and does not use the term 'import restriction'. Neither the statute nor its legislative history explains why different terms are used. Presumably, the terms are to be considered as largely synonymous with one another.

59 Views of Vice Chairman Parker and Commissioners Moore and Bedell in Sugar: Report to the President on Investigation No. TA-201-16 . . ., USITC Publication 807, March 1977, p. 20.

60 See Proclamation 4482, issued January 19, 1977 (42 F.R. 4309), following Commission investigation No. 22-40, Dried Milk Mixtures, USITC Publication 783, July 1976.

61 Finance Committee Report, at 126.

62 See, for example, Stainless Steel and Alloy Toll Steel, TA-201-48, op. cit., note 19, at 3-4; High-Carbon Ferrochromium: Report to the President on Investigation No. TA-201-35 . . ., USITC Publication 911, September 1978; Sugar, op. cit., note 61; and Mushrooms, TA-201-17, op. cit., note 48.

63 March 7, 1977, GC memorandum on flexible quotas, in connection with investigation No. TA-201-16, Sugar, at 3-4.

64 See, for example, Copper, op. cit., note 39, at 3 (Commission report sent to President in August, but quotas retroactive to January 1); and Stainless Steel and Alloy Tool Steel, TA-201-48, op. cit., note 19, at 1-3 (Commission report sent to President in May, but quotas retroactive to January 1.)

65 Our recommendation that the Commission should not recommend OMA's should in no way be interpreted to suggest that we think it inappropriate for the President to negotiate OMA's.

66 E.g., sec. 301.

67 Trade Reform Act of 1973: Bill in Its Various Forms, H.R. 10710 (93d Cong., 1st Sess.), Oct. 3, 1973, p. 52.

68 Trade Reform Act of 1974: Bill in Its Various Forms, H.R. 10710 (93d Cong., 2d Sess.), Nov. 26, 1974, p. 107-10.

69 Finance Committee Report, at 123.

70 Trade Act of 1974: Conference Report. H. Rept. 93-1644 (93d Cong., 2d Sess.), 1974, p. 34 (discussing amend. No. 191). (Hereinafter referred to as 1974 Conference Rept.)

71 Id.

72 1962 Senate Finance Committee Report, op. cit., note 14, at 11.

73 Id. at 23-24.

74 Detailed Description of the Substance of the Provisions of the Trade Expansion Act of 1962 (87th Cong., 1st sess.) 1962, p. 4, reprinted in Staff of the Comm. on Ways and Means (87th Cong., 1st sess.), Legislative History of the Trade Expansion Act of 1962, 1967, sec. 25, p. 2044.

75 Trade Expansion Act of 1962: Conference Report, Conf. Rept. No. 2518 (87th Cong., 2d Sess.), 1962, p. 13 (discussing Amend. No. 90). (Hereinafter referred to as 1962 Conference Report.)

76 1962 Senate Conference Report, op. cit., note 14, at 6.

77 Id. at 23-24.

78 Trade Expansion Act of 1962: Summary of Senate Amendments to H.R. 11970 (87th Cong., 1st Sess.), 1962, p. 8, reprinted in Staff of the House Comm. on Ways and Means (87th Cong., 1st Sess.), Legislative History of the Trade Expansion Act of 1962, 1967, sec. 20, p. 1938 (discussing Amend. No. 90.).

79 Sec. 201(d)(1)(B).

80 Sec. 202(a).

81 Mushrooms: Report to the President on Investigation No. TA-201-10 . . ., USITC Publication 761, March 1976, at 2; and Shrimp: Report to the President on Investigation No. TA-201-12 . . ., USITC Publication 773, May 1976, at 2.

82 Mushrooms, TA-201-10, op. cit., note 83, at 17.

83 See views of Commissioners Alberger and Minchew in Copper, op. cit., note 39, at 24. They stated that a loan of $1 million or loan guarantee of $3 million would do little to help a capital-intensive industry like the copper industry, where a refinery cost $200 million in 1975.

End of Document

EXHIBIT 16

Axios Generate

By Amy Harder (/Community/AmyHarder) • Sep 25

Good morning everyone, and welcome to the last week of September. It's going to be nearly 90 degrees today in Washington, D.C., which makes my latest Harder Line column particularly timely.

Born out of my own recent experience as a homeowner, I look at how air conditioners are playing catch-up to a suite of environmental rules. I'll share it below and then hand things back to Ben to get you up to speed on the rest of the news you need to know.

How your air conditioner plays catch-up to regulations

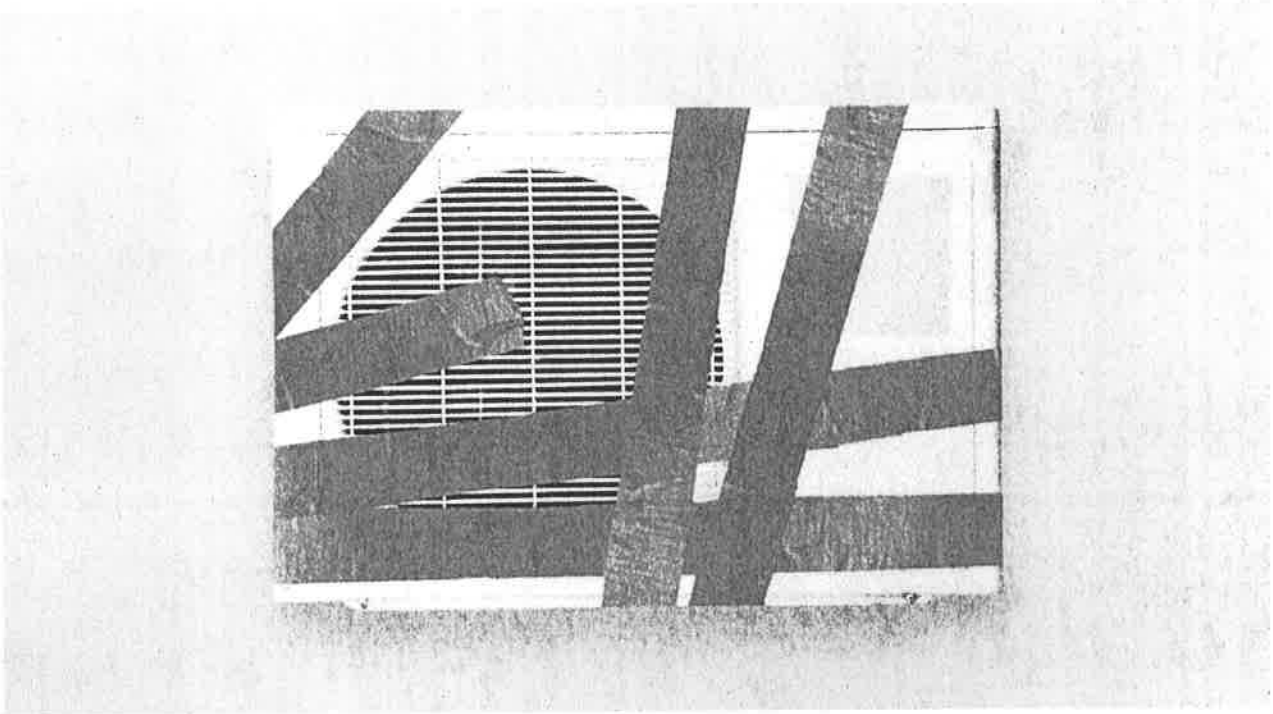


Illustration: Rebecca Zisser / Axios

Environmental rules, like any regulation, upend industries and business behavior in obscure ways. Ultimately, however, the rules usually leave consumers on the hook for the costs. I know because I'm one of them.

What you need to know: Nearly 90% (https://www.eia.gov/consumption/residential/data/2015/hc/php/hc7.1.php) of U.S. homes have air conditioners, which will need repairs at one time or another. If a technician encourages replacement of an A/C unit because of environmental rules, there are three refrigerants you need to know about, and three regulatory transitions too.

Dive deeper: Read the rest of my column in the Axios stream here (http://axios.link/gtWs).

Business news: big power deal, oil outlook, Gazprom rising

Big in power: ABB, the Swiss multinational tech and engineering giant, announced a $2.6 billion deal Monday to acquire GE Industrial Solutions, the GE unit that makes an array of electrical equipment.

> "With GE Industrial Solutions, we strengthen our Number 2 position in electrification globally and expand our access to the attractive North American market," ABB CEO Ulrich Spiesshofer said in a statement.
>
> The GE unit — which makes a wide range of electrical equipment like transformers and circuit breakers — had revenues of $2.7 billion last year, according to ABB.
>
> **Go deeper:** The Wall Street Journal explores how (https://www.wsj.com/articles/ge-agrees-to-sell-industrial-unit-to-abb-for-2-6-billion-1506321704) the deal is part of GE's efforts to streamline its sprawling operations.

Oil market buzz: Bloomberg takes the pulse (https://www.bloomberg.com/news/articles/2017-09-25/oil-traders-turn-more-bullish-at-asia-s-top-energy-conference) of oil traders at the Asia Pacific Petroleum Conference in Singapore and finds more optimism than last year, thanks to stronger worldwide demand and production cuts from the cooperation between OPEC, Russia, and some other producers.

> "Bloated crude inventories have started to shrink, and products markets — particularly diesel — are getting tighter. If 2016 was about $50 a barrel, it's $60 a barrel this year," Bloomberg reports.

Bloomberg also passes along the view (https://www.bloomberg.com/news/articles/2017-09-25/top-bp-executive-warns-opec-needs-to-prolong-oil-output-curbs) of a top BP trader who argues that the production-cutting deal should be extended beyond the first quarter of next year in order to rebalance markets.

Reporting from the same event, Reuters reports (http://www.reuters.com/article/us-asia-oil-appec-usa/u-s-oil-exports-to-meet-5-percent-of-non-u-s-global-demand-by-2022-enterprise-idUSKCN1C0064?rpc=401&) on one executive's forecast that U.S. crude oil exports could grow to meet 5% of global demand within five years "as refiners seek more low-sulfur crude to meet stricter rules for cleaner fuels."

Changing of the guard: S&P Global Platts is out with its annual energy company rankings, and this year Russia's state-owned gas and oil giant Gazprom tops the list, ending the long reign of ExxonMobil, which is now 9th.

You can see the full 250-company list, and compare this year's rankings to prior years, right here (https://top250.platts.com/Top250Rankings). It's based on "asset worth, revenues, profits, and return on invested capital."

On our radar: Clean Energy Week and Capitol Hill

Get ready: An array of energy industry groups — representing wind and solar, biomass, LNG, nuclear and more — have dubbed this week "National Clean Energy Week (https://nationalcleanenergyweek.org)" and scheduled a suite of events, like this

symposium tomorrow (https://www.eventbrite.com/e/national-clean-energy-week-symposium-tickets-37654834624) where Energy secretary Rick Perry and Interior secretary Ryan Zinke are slated to appear.

Flashback: Amy wrote about the effort and the messaging behind it here (https://www.axios.com/groups-to-launch-clean-energy-lobbying-blitz-2474186045.html), noting that the groups are seeking to "highlight how the industry is creating jobs and providing reliable electricity, with less focus on the sector's role combating climate change."

The other side: Some environmentalists are chafing at the messaging and lobbying blitz because groups involved include fossil-fuel organizations, including the American Petroleum Institute, as well as the nuclear power industry's main trade group and others. (The full list of groups is here (https://nationalcleanenergyweek.org/about/).)

> The environmentalists are warning of "greenwashing," and in a letter to Congress, around a dozen green groups warn that "[t]axpayer dollars should not support dangerous and dirty technologies masquerading as 'clean energy.'" Groups behind the letter include 350.org, the Center for Biological Diversity, and Friends of the Earth.

***

A few other things on our radar this week in Congress...

DOE nominees: The Senate Energy and Natural Resources Committee meets tomorrow (https://www.energy.senate.gov/public/index.cfm/hearings-and-business-meetings?ID=2C2D732D-82CD-43DC-BB9B-FED355A4BE69) to hear from nominees for two major Energy Department jobs: assistant secretary for fossil energy and assistant secretary for electricity delivery and energy reliability.

Tech in focus: Also Tuesday, a House Energy and Commerce subcommittee examines (https://energycommerce.house.gov/hearings/powering-america-technologys-role-empowering-consumers/) "technology's role in empowering consumers." This hearing will examine a suite of emerging technologies like microgrids, storage, and other distributed energy resources.

Nuclear: One more on a packed Tuesday — a House Oversight and Government Reform subcommittee will look into (https://oversight.house.gov/hearing/examining-americas-nuclear-waste-management-storage/) nuclear waste storage and management policy.

Into the Great Wide Open on solar

Big picture: This sums it up pretty well...

A Goldman Sachs note this morning says that Friday's big (https://www.axios.com/itc-rules-solar-manufacturers-injured-by-imports-2488337757.html) International Trade Commission ruling (https://www.usitc.gov/press_room/news_release/2017/er0922ll832.htm) on solar was "largely expected," but adds:

> "By 11/13, the ITC will recommend specific trade restrictions, where expectations appear to be more wide-ranging as to the extent and ultimate impact of any imposed financial remedies."
>
> Simply put, things are going to be murky for a while, and that's especially true because the White House, under U.S. trade law, has wide-ranging discretion to follow whatever the ITC recommends or do something different, and either more or less aggressive.

What's next: We'll spend more time with this in the coming weeks, but there are a couple of things to watch and consider in the next phases, beginning with briefs due to the ITC this week and then a public hearing October 3.

1. Trade issues: One is how the outside parties opposed to tariffs suggest that the White House may be able to thread the needle of imposing new trade penalties without causing solar panel costs to skyrocket so much that new projects become uneconomical.

> For instance: "Under global trade rules, a country can exempt a product from safeguard import measures from another country with which it has a free-trade agreement. If the ITC and the Trump administration insist on restricting imports in this case, they should consider this as an alternative strategy," notes Clark Packard, an analyst with the free-market R Street Institute, in a primer the group recirculated over the weekend in response to the ruling.

Using FTA as a loophole.

2. Coal question: Another wrinkle is whether the White House will view the potential trade penalties as another tool to assist coal, in addition to a chance to show a muscular trade policy imposing restrictions that hit exports from solar companies in Asia and elsewhere.

> Moody's analysts have argued that imposing tariffs that stymie investment in solar energy could extend the life of some U.S. coal-fired power plants.

More: Here's a little perspective on that idea, from an energy expert with the Council on Foreign Relations...

> "I think there will be at least a small lift for coal. The reason is that less solar coming online means wholesale prices won't drop as much in each market, meaning coal plants can make more revenue," Varun Sivaram tells Axios in an email.

"Coal plants still are going to struggle to compete with cheap gas, assuming gas prices stay low. But the marginal effect of less solar is probably to help out both coal and gas by raising wholesale prices," Sivaram said.

One good listen: Trump and U.S. energy "dominance"

Giphy

Big picture: Good stuff on the latest episode (https://www.cfr.org/podcasts/energy-and-geopolitics) of The President's Inbox, a Council on Foreign Relations podcast, where author (http://www.simonandschuster.com/books/Windfall/Meghan-L-OSullivan/9781501107931) Meghan O'Sullivan offers a lucid and helpful view of the U.S. energy boom and how it is shaking up markets and geopolitics.

Here are a couple of the many interesting points from O'Sullivan:

LNG and geopolitics: "I am not a big believer that the U.S. is going to capture a lot of Russia's market in Europe," said O'Sullivan, a former George W. Bush adviser, casting doubt on the prospect of using U.S. LNG to counter Russian influence.

Why? Longtime supplier Russia, facing more global market competition, has been willing to alter its business practices and renegotiate prices, and there are newer entrants on the global scene.

> "A lot of foreign policy people, who may not be market people, think about, 'Well, we should be able to take away the market share from Russia, and that should be easily done and there should be no question that this is a good thing.' That overlooks the fact that this trade is done by companies, not countries or governments, and so it has to be commercial. So there is a big price element there," she said.

China: The surge in U.S. oil-and-gas production and all the supplies sloshing around global markets mean China is less anxious about access to energy, which has a beneficial effect.

> "I do think that this energy abundant landscape that we are talking about puts China in a more comfortable position in the existing network of norms and institutions," she said.

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+ MORE ISSUES

EXHIBIT 17

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Cleantech & Industrial Growth

The Solar Snapshot: 201 Loophole in Canada?

We had originally discounted Canada being considered a free trade zone in our 201 injury note last week (see here). After further review, modules manufactured in Canada containing imported cells could possibly qualify as "Canadian origin" under NAFTA Origin and Marking Rules (according to some lawyers, but not all!). If this loophole persists, companies could ostensibly be able to ship cells to Canada, assemble them into modules, and then ship into the U.S., thereby sidestepping the section 201 and trade cases 1 and 2 (assuming cells do not come from China or Taiwan). CSIQ with its 300-500MW of module capacity in Canada would likely be the biggest near-term beneficiary. We believe Canada, overall, has ~1GW of module assembly capacity.

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- **Why was Canada excluded from the 201 injury decision?** Sections 311 and 312 of the NAFTA Act provide that "the United States shall not impose a safeguard measure on another NAFTA Party, including Canada, unless imports of that party: (a) . . . account for a substantial share of total imports; and (b) . . . contribute importantly to the serious injury." The NAFTA Act also states that a country's imports are not considered "a substantial share" if that country "is not among the top five suppliers of the article subject to the investigation . . . during the most recent three-year period." For solar modules, Canada has not been a top five supplier and consequently was not included in the 201.
- **What does this mean?** As mentioned above, CSIQ could be the near-term beneficiary. With ~25GW of cell capacity outside of China, Taiwan, and the U.S., other module manufacturers could ramp up module capacity over time in Canada. 201 cases generally last 2-3 years, so economically it is not clear if it would make sense to pursue.
- **What is next?** We understand that effort is being made to contest this loophole during the remedy process; additionally, some expect the President to shut it down, but this could represent a violation of NAFTA.

Exhibit 1: Solar upstream and downstream players.

Solar (1)	Ticker	Exchange	Price 9/25/17	Mkt Cap $mln	EV $mln	Calendar EPS 2017E	Calendar EPS 2018E	Calendar Revs 2017E	Calendar Revs 2018E	Revenue Growth 2017E	Revenue Growth 2018E	Calendar EBITDA 2017E	Calendar EBITDA 2018E	EBITDA Growth 2017E	EBITDA Growth 2018E	P/E 2017E	P/E 2018E	EV/S 2017E	EV/S 2018E	EV/EBITDA 2017E	EV/EBITDA 2018E	P/B	ROE
US Solar Downstream																							
Sunworks, Inc	SUNW Equity	NASDAQ CM	$1 40	31	30	$0 00	$0 15	91	116	5%	28%	3	7	NA	159%	466 7x	9 2x	0 3x	0 3x	10 4x	4 0x	1 8x	13%
Sunrun Inc	RUN Equity	NASDAQ GS	$5 19	551	1,876	$0 77	$1 51	562	710	23%	26%	(64)	(52)	NA	NA	6 8x	3 4x	3 3x	2 6x	NA	NA	0 5x	6%
Vivint Solar Inc	VSLR US Equity	New York	$3 30	378	1,357	($1 49)	($1 19)	268	340	99%	27%	(40)	8	NA	NA	NA	NA	5 1x	4 0x	NA	165 3x	0 5x	-17%
																236.7x	6.3x	2.9x	2.3x	10.4x	84.7x	0.9x	2%
Average																							
US Cell / Module																							
First Solar Inc	FSLR Equity	NASDAQ GS	$46 88	4 895	2,987	$2 25	$1 40	3,048	2,370	6%	-22%	379	354	-34%	-7%	20 8x	33 6x	1 0x	1 3x	7 9x	8 4x	0 9x	3%
SunPower Corp	SPWR Equity	NASDAQ GS	$7 11	992	2,693	($1 10)	$0 07	2,130	2,440	-20%	15%	71	236	-63%	230%	NA	107 7x	1 3x	1 1x	37 7x	11 4x	1 0x	-8%
																20.8x	70.7x	1.1x	1.2x	22.8x	9.9x	1.0x	-3%
Average																							
US-Listed Chinese & Korean Cell / Module																							
Canadian Solar Inc	CSIQ Equity	NASDAQ GS	$16 04	930	2,903	$1 60	$2 62	3,390	3,843	18%	13%	317	363	18%	14%	10 0x	6 1x	0 9x	0 8x	9 1x	8 0x	1 0x	18%
Hanwha Q CELLS Co Ltd	HQCL Equity	NASDAQ GS	$7 62	634	1,340	$0 09	$0 18	2,427	2,006	35%	-17%	186	178	-42%	-4%	89 6x	42 3x	0 6x	0 7x	7 2x	7 5x	1 3x	6%
JA Solar Holdings Co Ltd	JASO Equity	NASDAQ GS	$7 52	358	793	$0 51	$0 46	2,325	2,161	-1%	-7%	204	252	-11%	24%	14 7x	16 2x	0 3x	0 4x	3 9x	3 1x	0 4x	6%
JinkoSolar Holding Co Ltd	JKS Equity	New York	$25 17	819	2,250	$1 52	$1 80	3,481	3,236	4%	-7%	172	213	-56%	24%	16 5x	14 0x	0 6x	0 7x	13 1x	10 6x	0 8x	4%
ReneSola Ltd	SOL Equity	New York	$2 36	47	635	($2 60)	($1 54)	733	802	-21%	9%	57	72	-22%	27%	NA	NA	0 9x	0 8x	11 2x	8 9x	0 7x	-65%
Yingli Green Energy Holding Co Ltd	YGE Equity	New York	$2 30	42	1,758	($9 54)	($9 54)	987	862	-23%	-13%	44	75	-57%	71%	NA	NA	1 8x	2 0x	40 0x	23 4x	0 4x	153%
																32.7x	19.7x	0.8x	0.9x	14.1x	10.3x	0.6x	21%
Average																15.6x	15.1x	0.8x	0.7x	10.2x	8.4x	0.8x	7%
Median																							
Asia-Listed Cell / Module																							
AU Optronics Corp	2409 TT Equity	Taiwan	$0 41	3,912	5,189	$0 10	$0 03	11,223	10,025	7%	-11%	2,356	1,626	48%	-31%	3 9x	14 5x	0 5x	0 5x	2 2x	3 2x	NA	NA
China Singyes Solar Technologies Holdings	750 HK Equity	Hong Kong	$0 35	288	830	$0 08	$0 07	895	893	3%	0%	156	159	6%	2%	4 4x	5 2x	0 9x	0 9x	5 3x	5 2x	0 5x	10%
Comtec Solar Systems Group Ltd	712 HK Equity	Hong Kong	$0 04	83	119	$0 00	$0 00	135	142	-21%	5%	16	24	NA	44%	NA	10 9x	0 9x	0 8x	7 3x	5 1x	1 8x	0%
EGing Photovoltaic Technology Co Ltd	600537 CH Equity	Shanghai	$0 79	926	927	$0 05	$0 06	798	890	61%	12%	124	140	64%	13%	15 8x	13 1x	1 2x	1 0x	7 5x	6 6x	1 8x	11%
Energy Absolute PCL	EA TB Equity	Bangkok	$1 16	4,339	5,052	$0 04	$0 05	412	511	26%	24%	223	266	34%	28%	30 6x	22 8x	12 3x	9 9x	22 7x	17 7x	11 5x	36%
GCL System Integration Technology Co Ltd	002506 CH Equity	Shenzhen	$0 66	3,318	4,662	$0 01	$0 02	1,945	2,064	4%	6%	200	273	34%	37%	54 8x	34 6x	2 4x	2 3x	23 3x	17 1x	5 3x	10%
Gintech Energy Corp	3514 TT Equity	Taiwan	$0 56	307	275	($0 12)	($0 07)	411	442	NA	8%	2	35	NA	1802%	NA	NA	0 7x	0 6x	148 7x	7 8x	0 8x	-13%
Hanergy Thin Film Power Group Ltd	566 HK Equity	Hong Kong	$0 50	20,945	20,774	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21 4x	NA
Hareon Solar Technology Co Ltd	600401 CH Equity	Shanghai	$0 23	1,064	2,023	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 2x	NA
Jiangsu Akcome Science & Technology Co Ltd	002610 CH Equity	Shenzhen	$0 39	1,738	2,744	$0 01	$0 01	642	684	20%	7%	238	267	77%	12%	38 7x	43 0x	4 3x	4 0x	11 5x	10 3x	2 0x	5%
Jolywood Suzhou Sunwatt Co Ltd	300393 CH Equity	Shenzhen	$8 73	1,230	1,431	$0 29	$0 45	534	930	NA	74%	83	127	NA	52%	23 0x	14 8x	2 7x	1 5x	17 2x	11 3x	7 0x	31%
Motech Industries Inc	6244 TT Equity	Taipei	$0 78	419	540	($0 17)	($0 16)	746	727	-21%	-3%	(6)	14	NA	NA	NA	NA	0 7x	0 7x	NA	38 7x	1 0x	-18%
Neo Solar Power Corp	3576 TT Equity	Taiwan	$0 47	481	817	($0 11)	($0 11)	274	NA	-55%	NA	NA	NA	NA	NA	NA	NA	3 0x	NA	NA	NA	1 0x	-22%
Risen Energy Co Ltd	300118 CH Equity	Shenzhen	$2 05	1,850	2,176	$0 10	$0 12	713	843	-30%	18%	28	31	-83%	14%	20 5x	17 0x	3 1x	2 6x	79 0x	69 5x	1 7x	6%
Shenzhen Topraysolar Co Ltd	002218 CH Equity	Shenzhen	$0 76	942	1,139	$0 02	$0 03	255	327	34%	29%	NA	NA	NA	NA	36 3x	22 4x	4 5x	3 5x	NA	NA	2 3x	6%
Shunfeng International Clean Energy Ltd	1165 HK Equity	Hong Kong	$0 05	232	2,516	$0 06	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 0x	NA	NA	NA	NA	NA	0 3x	28%
Solartech Energy Corp	3561 TT Equity	Taiwan	$0 43	161	256	($0 08)	($0 12)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0 8x	-14%
Tainergy Tech Co , Ltd	4934 TT Equity	Taiwan	$0 41	138	163	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 0x	NA
LONGi Green Energy Technology Co Ltd	601012 CH Equity	Shanghai	$4 21	8,412	8,950	$0 17	$0 22	2,376	3,175	32%	34%	586	772	96%	32%	24 4x	19 2x	3 8x	2 8x	15 3x	11 6x	5 3x	22%
Zhejiang Chint Electrics Co Ltd	601877 CH Equity	Shanghai	$3 31	7,128	8,255	$0 21	$0 24	3,604	3,922	97%	9%	879	974	130%	11%	15 9x	14 1x	2 3x	2 1x	9 4x	8 5x	2 5x	16%
Zhejiang Jinggong Science & Technology Co Ltd	002006 CH Equity	Shenzhen	$1 20	544	537	$0 04	$0 05	132	142	32%	7%	29	33	100%	17%	29 2x	23 9x	4 1x	3 8x	18 8x	16 1x	3 8x	13%
Zhejiang Jingsheng Mechanical & Electrical Co Ltd	300316 CH Equity	Shenzhen	$2 26	2,226	2,122	$0 07	$0 10	344	475	203%	38%	79	118	115%	49%	32 8x	23 3x	6 2x	4 5x	26 8x	17 9x	4 3x	13%
Zhejiang Sunflower Light Energy Science &	300111 CH Equity	Shenzhen	$0 62	686	786	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3 6x	NA
																23.0x	19.9x	3.1x	2.6x	28.2x	16.4x	3.7x	8%
Average																23.7x	18.1x	2.7x	2.2x	16.2x	11.3x	2.1x	10%
Median																							
Europe-Listed Cell / Module																							
Solarworld AG	SWWK GR Equity	Frankfurt	$0 97	14	347	($3 15)	($1 08)	942	987	0%	5%	28	66	28%	136%	NA	NA	0 4x	0 4x	12 3x	5 2x	NA	NA
Poly / Wafer																							
Beijing Jingyuntong Technology Co Ltd	601508 CH Equity	Shanghai	$0 84	1,683	2,184	$0 05	$0 07	396	528	16%	33%	NA	NA	NA	NA	17 6x	12 4x	5 5x	4 1x	NA	NA	1 8x	10%
Danen Technology Corporation	3685 TT Equity	Taiwan	$0 24	85	65	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0 8x	NA
Daqo New Energy Corp	DQ Equity	New York	$27 46	289	518	$6 28	$4 72	306	274	30%	-11%	132	112	27%	-15%	4 4x	5 8x	1 7x	1 9x	3 9x	4 6x	1 1x	22%
GCL-Poly Energy Holdings Ltd	3800 HK Equity	Hong Kong	$0 13	2,355	8,647	$0 02	$0 02	3,474	3,516	-1%	1%	1,387	1,506	8%	9%	7 5x	7 0x	2 5x	2 5x	6 2x	5 7x	0 7x	5%
Green Energy Technology Inc	3519 TT Equity	Taiwan	$0 59	246	411	($0 11)	($0 09)	342	338	-34%	-1%	11	NA	NA	NA	NA	NA	1 2x	1 2x	36 9x	NA	1 5x	-25%
KCC Corp	002380 KS Equity	Korea SE	$316 73	3,344	997	$17 94	$20 01	3,244	3,331	7%	3%	471	486	-1%	3%	17 7x	15 8x	0 3x	0 3x	2 1x	2 1x	0 5x	4%
OCI Co Ltd	010060 KS Equity	Korea SE	$90 18	2,151	3,199	$5 72	$4 25	2,948	2,718	25%	-8%	425	431	9%	1%	15 8x	21 2x	1 1x	1 2x	7 5x	7 4x	0 7x	NA
REC Silicon ASA	REC NO Equity	Oslo	$0 13	339	459	($0 04)	($0 01)	264	363	-1%	37%	10	66	NA	532%	NA	NA	1 7x	1 3x	43 9x	6 9x	0 5x	-14%
Sino-American Silicon Products Inc	5483 TT Equity	Taipei	$2 21	1,260	2,104	$0 03	$0 08	1,926	2,020	97%	5%	163	NA	64%	NA	73 6x	27 6x	1 1x	1 0x	12 9x	NA	1 0x	1%
TBEA Co Ltd	600089 CH Equity	Shanghai	$1 50	5,560	8,545	$0 11	$0 12	6,724	7,362	21%	9%	692	778	20%	12%	14 0x	12 3x	1 3x	1 2x	12 4x	11 0x	1 0x	7%
Tianjin Zhonghuan Semiconductor Co Ltd	002129 CH Equity	Shenzhen	$1 25	3,294	4,609	$0 04	$0 04	1,207	1,402	14%	16%	236	290	NA	23%	34 6x	30 4x	3 8x	3 3x	19 6x	15 9x	2 1x	6%
Tokuyama Corp	4043 JP Equity	Tokyo	$4 71	1,645	2,752	$0 23	$0 59	2,593	2,799	-7%	8%	457	496	0%	8%	20 4x	8 0x	1 1x	1 0x	6 0x	5 5x	0 6x	6%
Wacker Chemie AG	WCH GR Equity	Xetra	$136 49	7,275	8,129	$4 45	$5 91	5,790	6,028	0%	4%	1,134	1,196	-1%	6%	31 3x	23 0x	1 4x	1 3x	7 2x	6 8x	1 9x	6%
Wafer Works Corporation	6182 TT Equity	Taipei	$1 01	437	575	$0 03	$0 06	-213	251	NA	18%	38	57	NA	50%	31 5x	16 5x	2 7x	2 3x	15 0x	10 0x	1 9x	9%
																22.3x	15.1x	1.8x	1.6x	13.4x	6.9x	1.1x	3%
Average																17.7x	15.8x	1.4x	1.3x	9.9x	6.9x	1.0x	6%
Median																							
Equipment																							
Amtech Systems Inc	ASYS US Equity	NASDAQ GS	$11 06	159	128	$0 11	$0 44	165	190	46%	15%	9	10	NA	19%	99 6x	25 1x	0 8x	0 7x	15 0x	12 7x	2 2x	11%
Applied Materials Inc	AMAT US Equity	NASDAQ GS	$46 33	49,410	47,482	$3 33	$3 65	14,872	15,962	29%	7%	4,535	4,993	49%	10%	13 9x	12 7x	3 2x	3 0x	10 5x	9 5x	5 8x	45%
Centrotherm International AG	CPHVF US Equity	OTC US	NA	NA	20	($0 25)	$0 10	162	186	18%	15%	NA	NA	NA	NA	NA	NA	0 1x	0 1x	NA	NA	NA	NA
EGing Photovoltaic Technology Co Ltd	600537 CH Equity	Shanghai	$0 79	926	927	$0 05	$0 06	798	890	61%	12%	124	140	64%	13%	15 8x	13 1x	1 2x	1 0x	7 5x	6 6x	1 8x	11%
Illinois Tool Works Inc	ITW US Equity	New York	$147 07	50,614	56,172	$6 46	$7 10	14,127	14,610	4%	3%	3,859	4,096	9%	6%	22 8x	20 7x	4 0x	3 8x	14 6x	13 7x	10 7x	49%
Intevac Inc	IVAC US Equity	NASDAQ GS	$8 45	184	150	$0 12	$0 63	112	145	39%	29%	6	16	NA	179%	72 8x	13 3x	1 3x	1 0x	25 8x	9 2x	2 5x	13%
Jiangsu Huasheng Tianlong Photoelectric Co Ltd	300029 CH Equity	Shenzhen	$1 39	277	282	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 6x	NA
Manz AG	MZX GR Equity	Xetra	$45 90	355	290	$1 07	$2 80	439	501	80%	14%	29	47	NA	64%	42 9x	16 4x	0 7x	0 6x	10 1x	6 1x	1 8x	4%
Meyer Burger Technology AG	MBTN SW Equity	SIX Swiss Ex	$1 39	760	765	$0 02	$0 07	485	554	10%	14%	44	78	254%	78%	69 3x	19 0x	1 6x	1 4x	17 5x	9 8x	3 5x	5%
NAURA Technology Group Co Ltd	002371 CH Equity	Shenzhen	$4 31	1,973	1,950	$0 05	$0 08	354	442	51%	25%	NA	NA	NA	NA	82 9x	53 9x	5 5x	4 4x	NA	NA	3 9x	5%
PVATePla AG	TPE GY Equity	Xetra	$5 92	129	128	$0 08	$0 14	103	110	14%	7%	7	8	-6%	27%	76 9x	43 2x	1 2x	1 2x	19 5x	15 3x	2 8x	4%
TBEA Co Ltd	600089 CH Equity	Shanghai	$1 50	5,560	8,545	$0 11	$0 12	6,724	7,362	21%	9%	692	778	20%	12%	14 0x	12.3x	1 3x	1 2x	12 4x	11 0x	1 0x	7%
																51.1x	23.0x	1.9x	1.7x	14.7x	10.4x	4.2x	15%
Average																56.1x	17.7x	1.3x	1.2x	14.6x	9.8x	2.8x	9%
Median																							
Inverters																							
Advanced Energy Industries Inc	AES US Equity	NASDAQ GS	$73 65	2 942	2,579	$4 55	$4 58	649	682	35%	5%	197	209	43%	6%	16.2x	16 1x	4 0x	3 8x	13 1x	12 4x	6 1x	39%
Enphase Energy Inc	ENPH US Equity	NASDAQ GM	$1 35	115	131	($0 34)	$0 08	289	337	-12%	17%	(25)	22	NA	NA	NA	16 2x	0 5x	0 4x	NA	5 8x	-48 2x	255%
Ideal Power Inc	IPWR US Equity	NASDAQ CM	$2 73	36	25	($0 88)	($0 62)	3	16	10%	489%	(10)	(9)	NA	NA	NA	NA	NA	NA	NA	NA	0 0x	0%
Servotech Power Systems Ltd	SERVOTEC IN Equity	Natl India	$0 56	11	NA	NA	NA	0	NA	NA	NA	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 5x	-71%
SMA Solar Technology AG	S92 GR Equity	Xetra	$39 60	1,374	504	$0 53	$0 37	1,098	1,061	7%	-3%	110	120	-27%	9%	74 9x	107 3x	0 8x	0 9x	8 2x	7 5x	2 0x	3%
SolarEdge Technologies Inc	SEDG US Equity	NASDAQ GS	$26 80	1,128	854	$1 84	$1 75	552	593	NA	7%	94	103	NA	9%	14 6x	15 3x	1 5x	1 4x	9 1x	8 3x	3 6x	24%
Sungrow Power Supply Co Ltd	300274 CH Equity	Shenzhen	$2 42	3 504	3 566	$0 08	$0 10	1,204	1,512	42%	26%	161	213	40%	32%	29 5x	23 5x	3 0x	2 4x	22 3x	16 9x	3 6x	12%
																35.2x	38.7x	3.2x	1.6x	10.1x	8.5x	-5.7x	42%
Average																16.2x	16.1x	1.5x	1.4x	9.1x	7.9x	2.3x	13%
Median																							

(1) Consensus used for all companies

Source: Bloomberg (as of 9/25/17 market close); ROTH Capital Partners.

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For important disclosure information regarding the companies in this summary report, please contact: The Director of Research at (800) 678-9147 or write to: ROTH Capital Partners, LLC, Attention: Director of Research, 888 San Clemente Drive, Newport Beach, CA 92660

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Each box on the Rating and Price Target History chart above represents a date on which an analyst made a change to a rating or price target, except for the first box, which may only represent the first note written during the past three years. **Distribution Ratings/IB Services** shows the number of companies in each rating category from which Roth or an affiliate received compensation for investment banking services in the past 12 month.

Distribution of IB Services Firmwide

			IB Serv./Past 12 Mos. as of 09/25/17	
Rating	**Count**	**Percent**	**Count**	**Percent**
Buy [B]	**226**	**71.97**	**121**	**53.54**
Neutral [N]	**44**	**14.01**	**19**	**43.18**
Sell [S]	**5**	**1.59**	**3**	**60.00**
Under Review [UR]	**35**	**11.15**	**21**	**60.00**

Our rating system attempts to incorporate industry, company and/or overall market risk and volatility. Consequently, at any given point in time, our investment rating on a stock and its implied price movement may not correspond to the stated 12-month price target.

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Neutral: A rating, which at the time it is instituted and or reiterated, that indicates an expectation of a total return between negative 10% and 10% over the next 12 months.

Sell: A rating, which at the time it is instituted and or reiterated, that indicates an expectation that the price will depreciate by more than 10% over the next 12 months.

Under Review [UR]: A rating, which at the time it is instituted and or reiterated, indicates the temporary removal of the prior rating, price target and estimates for the security. Prior rating, price target and estimates should no longer be relied upon for UR-rated securities.

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