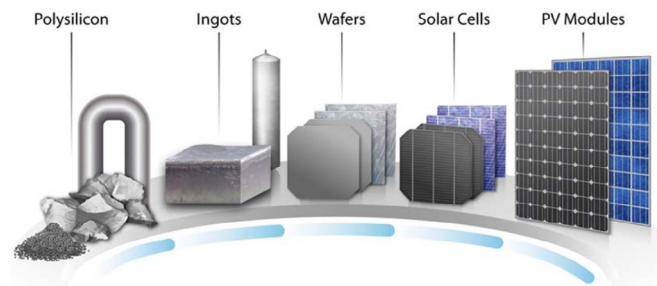


## U.S. Solar Supply Chain: Business Implications From U.S. Government Actions Against China

**Editor's Note:** In recent months, the U.S. government has taken a number of actions against China that could significantly impact the global solar supply chain. The situation continues to evolve and the purpose of this article is to highlight these potential issues and likely outcomes, and discuss how impacted companies can manage the risks associated with disruption in the global solar supply chain.

Photovoltaic (PV) solar continues its steep growth trajectory, with U.S. solar forecast to grow approximately 44% year-over-year in 2020 to over 19 GWdc of total installed solar (implying ~8 GWdc came online in 4Q20).<sup>1</sup> We anticipate better than expected growth in U.S. solar relative to prior forecasts, underpinned by the new Biden administration, an effective Democratic majority in the Senate, and the solar ITC extension included in the Consolidated Appropriations Act (CAA) passed by Congress in December 2020. Ongoing cost declines and efficiency improvements have lowered barriers to deployment.

Meanwhile, the combination of heightened environmental, social, and governance (ESG) focus from a wide range of actors and stricter carbon emissions reduction policies is driving demand. While the industry has had a long stretch of sustained growth, allegations about forced labor in the Xinjiang region in China have cast a spotlight on how the industry procures polysilicon, a critical raw material for solar PV modules.<sup>2</sup>



Source: NREL

<sup>1</sup> Source: SEIA and Wood Mackenzie, US Solar Market Insight (data through 3Q20, so prior to the tax credit extension in the CAA and other developments).

<sup>2</sup> <https://www.seia.org/news/solar-companies-unite-prevent-forced-labor-solar-supply-chain>

Xinjiang is an autonomous province in the northwest region of China. The region is rich with natural resources and exports commodities and base materials such as cotton, coal, sugar and tomatoes— as well as polysilicon, which is the key raw material in upstream solar products, including ingots, wafers, solar cells and PV modules. It is estimated that roughly 80% of global polysilicon is sourced from China, with approximately 40-50% of that originating in Xinjiang.<sup>3</sup> As a result, Xinjiang has been a global leader in cost-competitive polysilicon. However, U.S. government actions could change this position, meaningfully impacting the U.S. solar supply chain.

## History

For almost a century- the United States, under the [1930 Tariff Act](#), has prohibited imports produced with prison or slave labor in order to ensure fair competition for U.S. manufacturers. The law was strengthened by the Obama administration in 2016 leading to increased enforcement to curb such imports.

On International Human Rights Day (December 10, 2020) the Solar Energy Industries Association (SEIA) announced a new effort to address forced labor concerns in the U.S. solar supply chain.<sup>4</sup> SEIA lobbied the U.S. government to increase transparency in polysilicon labor practices in China. The SEIA also raised concerns about the lack of domestic polysilicon production, and concluded that the heavy market concentration in China of this vital material to the solar industry was detrimental to the long-term growth of U.S. solar.

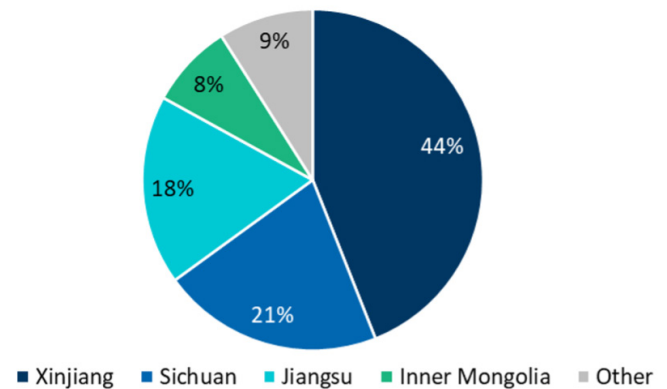
Solar analysts have noted that, following recent accidents at major Chinese facilities combined with further impacts from COVID-19, polysilicon supplies from China increased in price by roughly 65% period-over-period in mid-2020<sup>5</sup>. Certain domestic polysilicon manufacturers have been bolstering U.S. operations, but the U.S. does not currently have enough manufacturing capacity to turn polysilicon into the wafers and cells that are needed to satisfy domestic PV solar module demand. Most of that global manufacturing capability still resides in China.

<sup>3</sup> Source: S&P; Bernreuter Research

<sup>4</sup> <https://www.seia.org/news/solar-industry-call-action-forced-labor-has-no-place-solar-supply-chain>

<sup>5</sup> <https://ihsmarkit.com/research-analysis/surge-in-polysilicon-prices-triggers-unexpected-increase-in.html>

Production Capacity by Chinese Province (MT)



Source: Bernreuter Research

## Recent Legislative Developments

On September 22, 2020, the House of Representatives [passed](#) H.R. 6210 in a 406-3 vote. Senator Marco Rubio (R-FL) introduced a companion bill in the Senate (S. 3471) [with 33 cosponsors](#), but the legislation was not brought to a vote before the end of session—purportedly due to intense corporate lobbying from large, multinational corporations in opposing the bill.

Under H.R. 6210, the U.S. Customs and Border Protection (CBP) agency would be required to verify that imported goods produced in Xinjiang were not manufactured by forced labor before admitting them into the United States. Representative Jim McGovern (D-MA-02), the author of H.R. 6210, is expected to reintroduce his legislation in the current 117th Congress.

Senator Marco Rubio reintroduced the bill in the Senate on January 27 as [S. 65](#). The latest version of the bill from Senator Rubio, includes minor technical changes to H.R. 6210. S. 65 that would delay the CBP's implementation of the "guilty until proven innocent" standard until 300 days after the enactment of the bill. In addition, S. 65 removes a provision requiring companies to disclose their Xinjiang operations in their filings with the U.S. Securities and Exchange Commission. It is unclear whether Representative

McGovern, who introduced H.R. 6210 in the last Congress, will include these changes when he introduces the House version of the bill, or whether a watered-down version would receive the same degree of bipartisan support in the House.

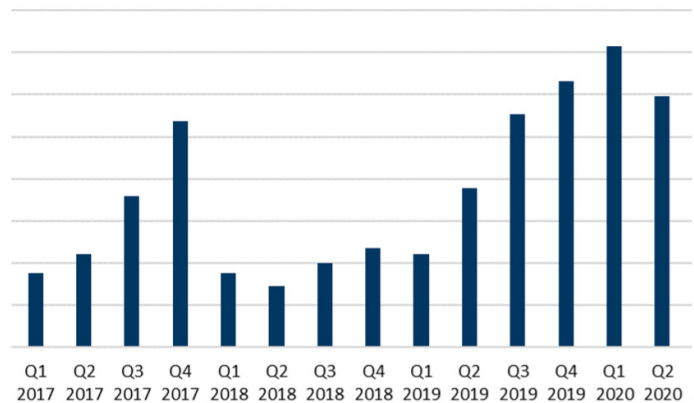
On January 13, 2021, the CBP issued a Withhold Release Order (WRO) on products imported from Xinjiang that CBP believed to be connected to forced labor.<sup>6</sup> CBP targeted imports of cotton and tomato-based food products. In a statement released following the ban, U.S. Department of Homeland Security (DHS) Acting Deputy Secretary Kenneth Cuccinelli said the order was a signal that “DHS will not tolerate forced labor of any kind.” This was the second WRO levied by CBP on imports from Xinjiang in Fiscal year 2021. Eight of the 13 WROs issued by CBP in fiscal year 2020 were on goods allegedly made with forced labor in China.<sup>7</sup>

## Potential Outcomes

The measures being implemented to ensure products coming out of Xinjiang are scrutinized could become a greater supply-chain risk for the U.S. solar industry. Given the high percentage of polysilicon produced in the Xinjiang region, there is reason to believe that a high percentage of solar panels deployed in the U.S. may contain some level of polysilicon from the Xinjiang region, leading to challenges for U.S. solar companies to satisfy the “guilty until proven innocent” presumption currently in place. Because of low visibility into labor practices within the region, there is increasing pressure to reject products originating from Xinjiang and seek sourcing elsewhere.

The CBP recently began detaining numerous products being imported from Xinjiang, including cotton and computer parts, and there is a high likelihood the list will soon include polysilicon. The introduced House bill appears to be more aggressive by allowing detainment, and places the burden of proof on the importers, while the Senate bill only detains products after evidence of forced labor is found.<sup>8</sup>

Quarterly U.S. Solar Panel Imports



Source: S&P, Panjiva

For goods to be released, importers must complete a Withhold Release Order (WRO) - that proves the products were not made using forced labor. While the Senate bill does call out six Chinese companies by name and gives the administration 60 days to complete investigations, none are polysilicon manufacturers. The House bill is clearly more disruptive to the U.S. solar supply chain and would require major restructuring and an expeditious domestic production boom to fulfill demand.

In tandem with solar installations at record levels, looming legislative decisions will have significant implications. In the meantime, it is possible the CBP continues to broaden its detainment of products imported from Xinjiang.

<sup>6</sup> Under federal statute 19 U.S.C. 1307, CBP has the authority to ban any imported goods if it is found they are connected to forced labor, but the Uyghur Forced Labor Prevention Act would require CBP to certify that any goods imported from Xinjiang are not manufactured with forced labor prior to admitting them to the United States.

<sup>7</sup> <https://www.cbp.gov/newsroom/national-media-release/cbp-issues-region-wide-withhold-release-order-products-made-slave>

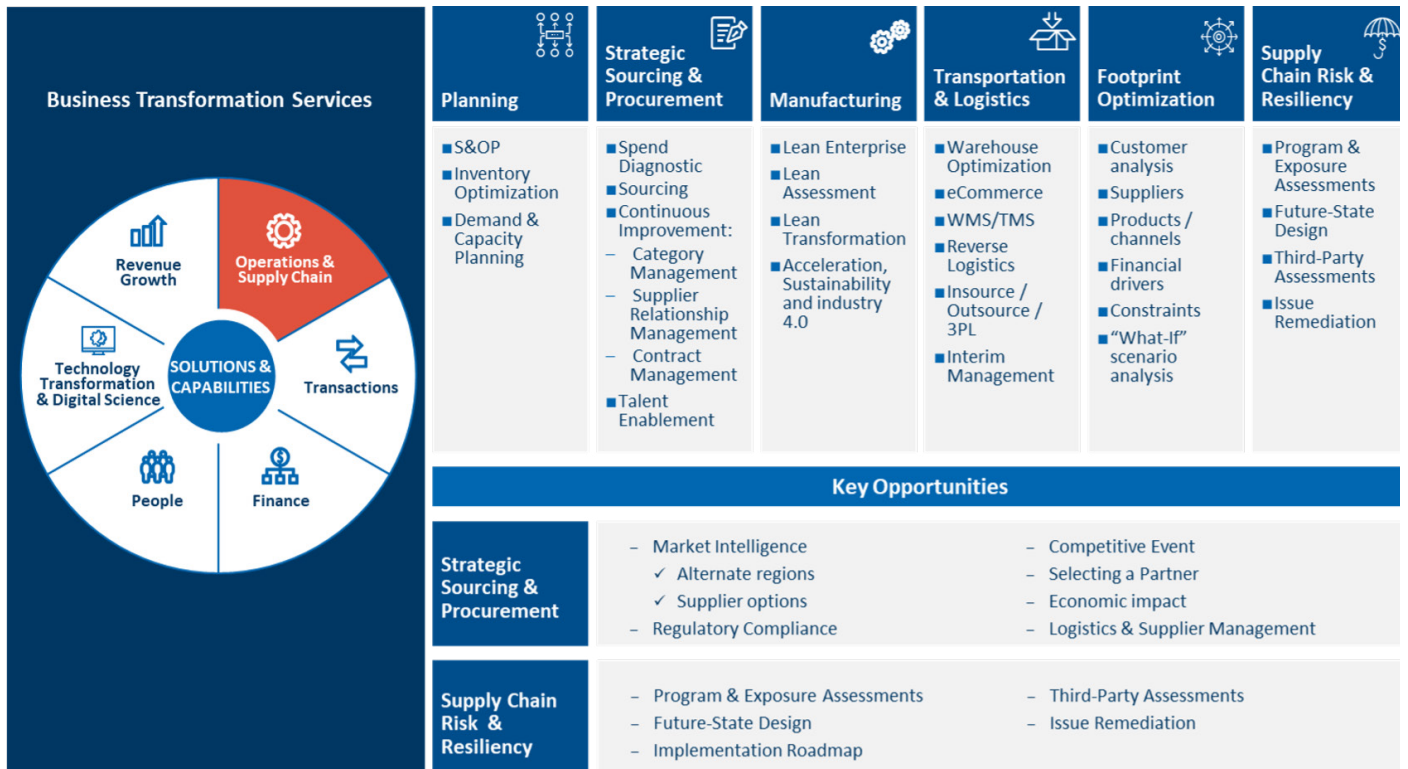
<sup>8</sup> <https://www.cbp.gov/newsroom/national-media-release/dhs-cracks-down-goods-produced-china-s-state-sponsored-forced-labor>

## How FTI Consulting Can Help

In order to mitigate the potential impacts of U.S. government actions on the U.S. solar supply chain, companies should be assessing their sourcing strategies and supply-chain risk exposure. FTI Consulting is well-positioned to assist U.S. solar companies through any issues with business transformation and integrated supply chain.

With Xinjiang potentially being excluded from the U.S. solar supply chain and Sichuan possibly being the next target, total annual suitable polysilicon capacity could be reduced significantly. While we note that some polysilicon suppliers are currently in the process of expanding their production capacities, most are still located in provinces such as Xinjiang and Sichuan. Alternative sources of supply both within China (e.g., Jiangsu) and outside (e.g., U.S., Korea, Germany, Taiwan) should be considered.

FTI Consulting takes a holistic, integrated approach to identifying and managing sourcing risks and supply markets. We review all product subcategories and cross reference them with market intelligence to prioritize opportunities. By identifying cost take-out opportunities in areas of indirect and direct expenses, FTI can help capture savings to offset potential price increases caused by market conditions, such as those affecting polysilicon. FTI also supports companies in communicating these risk management strategies and addressing concerns with investors, customers, and policymakers. From project-level to enterprise-wide efforts, our team of experts assesses and identifies stakeholder concerns, helping clients maintain control of the narrative.



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