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ARGUMENT

An expert's point of view on a current event.

The United States Can Cast Light on China's Shadowy Solar Industry

Opaque practices make it difficult to trace human rights abuses.

By **Matthew P. Funaiole**, a senior fellow with the China Power Project, and **Katherine Kurata**, a graduate student at the Fletcher School of Law and Diplomacy at Tufts University.

SEPTEMBER 1, 2021, 2:29 PM

The growing evidence connecting Chinese solar energy companies to human rights violations in Xinjiang casts a dark light on the industry. While U.S. policymakers and the business community have begun to push back, effective action requires better understanding of the opaque practices that bring Chinese solar goods into the U.S. market.

In late June, the White House announced a series of actions against five Chinese entities for “engaging in cruel and inhumane forced labor practices.” Concerns over the provenance of polysilicon, a high-grade form of silicon used as a raw material in producing solar products, was one of the main drivers behind these moves. Around 50 percent of the world’s supply of polysilicon comes from Xinjiang, a region where reports of China’s ongoing suppression of Uyghur and other minority populations have sadly become all too familiar.

One of the companies blacklisted by the Biden administration, which has received considerable media attention as a result, is Hoshine Silicon. The manufacturer of high-grade silicon is accused of using “transferred surplus labor” (a euphemism for coerced workers) from rural villages to manually crush silicon at its facilities.

Matthew P. Funaiole is a senior fellow with the China Power Project and senior fellow for data analysis with the iDeas Lab at CSIS.

Katherine Kurata is a graduate student at the Fletcher School of Law and Diplomacy at Tufts University.

TAGS: CHINA, HUMAN RIGHTS, RENEWABLE ENERGY

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the industry. While U.S. policymakers and the business community have begun to push back, effective action requires better understanding of the opaque practices that bring Chinese solar goods into the U.S. market.

In late June, the White House [announced](https://www.whitehouse.gov/briefing-room/statements-releases/2021/06/24/fact-sheet-new-u-s-government-actions-on-forced-labor-in-xinjiang/) a series of actions against five Chinese entities for engaging in cruel and inhumane forced labor practices.

Concerns over the provenance of polysilicon, a high-grade form of silicon used as a raw material in producing solar products, was one of the main drivers behind these moves. Around [50 percent](https://www.seia.org/sites/default/files/2021-03/SEIA%20Response%20to%20Senators%20Rubio%20and%20Merkley%20%283.26.2021%29.pdf) of the world's supply of polysilicon comes from Xinjiang, a region where reports of China's ongoing suppression of Uyghur and other minority populations have sadly become all too familiar.

One of the companies blacklisted by the Biden administration, which has received considerable media attention as a result, is Hoshine Silicon. The manufacturer of high-grade silicon is accused of [using](https://archive.vn/VQb0h) [transferred surplus labor](https://archive.vn/SO1e3) (a euphemism for coerced workers) from rural villages to [manually crush](https://archive.vn/SO1e3) silicon at its facilities.

While Hoshine certainly deserves to be targeted by authorities, it's difficult to parse the company's significance for the solar industry in the United States. According to Panjiva, a global supply chain insight and data company, direct connections between Hoshine and U.S. firms are few and far between. The same is true for the other three companies sanctioned in June: Xinjiang Daqo New Energy, Xinjiang East Hope Nonferrous Metals, and Xinjiang GCL New Energy Material Technology.

Why? Because most of their business ventures occur upstream, [well before](https://www.csis.org/analysis/addressing-forced-labor-concerns-polysilicon-produced-xinjiang) finished modules from China find their way into solar farms and onto roofs in the United States. This muddies efforts to assess where products linked to human rights abuses enter the market.

Given this uncertainty and the bad press as of late, U.S. companies may eventually pivot away from Chinese suppliers. Right now, however, demand appears to be on the rise. Through the first half of 2021, seaborne imports of solar products from China (by volume) jumped by 31 percent compared to the previous six months.

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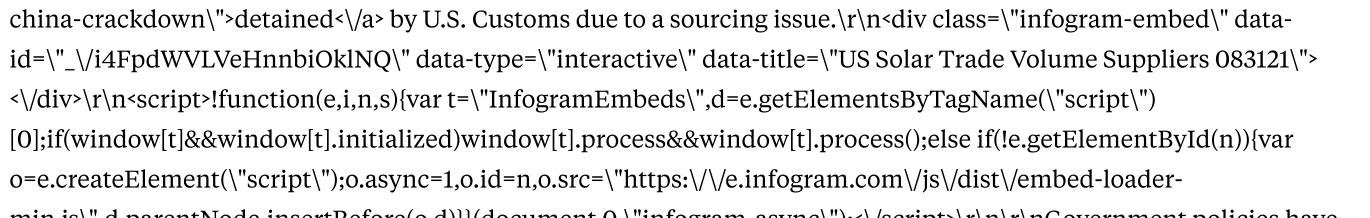
Longi Green Energy Technology is one of the major players. Last year, Longi accounted for 12 percent of U.S. solar technology imports (by volume) from China, but this number jumped to 25 percent through the first two quarters of 2021.

While Longi is not among the companies sanctioned by the Biden administration, it sources polysilicon from several suppliers that are linked to blacklisted entities. In 2020, Longi [signed a five-year agreement](https://www.marketscreener.com/quote/stock/LONGI-GREEN-ENERGY-TECHNO-10889446/news/Longi-Green-Energy-Technology-Signs-Long-Term-Procurement-Contract-for-Polysilicon-Materials-31136394/) to purchase 124,800 metric tons of polysilicon from Asia Silicon. On Feb. 1 of this year, Longi [inked](https://www.csis.org/analysis/beyond-polysilicon-ties-between-chinas-gcl-poly-and-united-states) a three-year supply agreement for 91,400 metric tons of polysilicon with Jiangsu Zhongneng. Corporate documents examined by [Sheffield Hallam University](https://www.shu.ac.uk/helena-kennedy-centre-international-justice/research-and-projects/all-projects/in-broad-daylight) reveal that both Asia Silicon and Jiangsu Zhongneng are among Hoshine's major customers.

Longi shares additional ties with Jiangsu Zhongneng's parent company, GCL-Poly Energy, which [seven](https://renewablesnow.com/news/longi-green-to-buy-usd-114bn-in-polysilicon-materials-from-gcl-poly-729893/#:~:text=account%20for%20free.,Longi%20Green%20to%20buy%20USD%201.14,polysilicon%20materials%20for%20all) of Longi's monocrystalline ingot and wafer subsidiaries with polysilicon. Although it is unclear where exactly Xinjiang GCL fits into the equation, the GCL-Poly subsidiary operates a [https://web.archive.org/web/20230306013458/https://foreignpolicy.com/2021/09/01/china-solar-industry-xinjiang/](https://www.pv-</p>
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administration. Concerns surround another of Longi's suppliers, Daqo New Energy, whose Xinjiang-based subsidiary was similarly sanctioned by Washington. Daqo is a major partner for several other Chinese companies that supply the U.S. market, including JinkoSolar and JA Solar (a subsidiary of the company Ningjin Jingtaifu). It's not just Chinese companies that are in the mix. Canadian Solar, a major U.S. supplier that operates a facility in China, entered a joint venture with Jiangsu Zhongneng in 2020. In early August, several of the Ontario-based manufacturer's sample module imports from China to its office in the United States were detained by U.S. Customs due to a sourcing issue.

An interactive infographic titled "US Solar Trade Volume Suppliers 083121" showing data on solar trade volume. The infographic is partially visible, showing a map of the United States and some data points.

Government policies have played a critical role in how China's polysilicon industry has evolved. For years, Chinese leaders have worked to transform Xinjiang into a leader in solar technology and incentivized companies to set up shop in the region. The Xinjiang Production and Construction Corps (XPCC), a paramilitary settler organization that employs around 12 percent of people in Xinjiang and exercises far-ranging authority, is pivotal in advancing Beijing's vision for developing the region. The XPCC is also widely suspected of committing human rights abuses against minority groups: It was first sanctioned by Washington in July 2020, subject to a Withhold Release Order last December, and again listed among the entities recently blacklisted by the Biden administration.

Several of the industrial parks in the region that offer preferential treatment (often facilitated by XPCC-owned companies) are hot spots for human rights abuses. Hoshine's facilities in Shanshan County's Stone Industrial Park, for example, are near two reported detention centers. JinkoSolar's Xinjiang-based subsidiary operates an ingot facility in the Xinyuan Industrial Park, which also contains a high-security prison and a detention center. The XPCC also administers several special economic areas connected to the solar industry. These include the Shihezi Economic and Technological Development Zone, where Hoshine and Daqo maintain facilities, and the Zhundong Economic and Technological Development Zone, where GCL-Poly and East Hope operate polysilicon plants. Chinese solar firms actively promote their support for Beijing's agenda in the region. Most have self-reported participating in state-sponsored poverty alleviation programs, which are notionally aimed at expanding economic opportunities for local communities but coerce minorities into work assignments they cannot easily refuse or escape. This targeting of vulnerable populations is often shrouded with euphemisms, including staff localization plans and surplus labor transfers, which have become red flags for potential human rights abuses. Beijing, of course, flatly denies that human rights abuses are occurring in Xinjiang, opting instead to paint foreign criticism as anti-Chinese propaganda. Earlier this year, Foreign

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that Washington uses human rights as a disguise to cripple the industrial development in Xinjiang. All four of the companies sanctioned by the Biden administration have participated in supposed poverty alleviation programs, as have the other major polysilicon producers in Xinjiang, along with many subsidiaries of leading suppliers of solar goods such as [Longi](https://archive.ph/XuQDZ), [JinkoSolar](https://archive.vn/xVLlk), and [Trina Solar](https://www.shu.ac.uk/-/media/home/research/helena-kennedy-centre/projects/pdfs/evidence-base/trina-2021-prospectus-for-the-issuance-of-convertible-corporate-bonds-by-trina-solar-co-ltd-to-unspe.pdf). What does this all add up to? Are all Chinese solar goods tainted by human rights abuses? Not necessarily, but the policies driving development in Xinjiang leave companies operating in the region exposed to such abuses, creating a prickly policy challenge for U.S. leaders. A comprehensive survey of the solar supply chain, similar to the review conducted for other critical products under [Executive Order 14017](https://www.whitehouse.gov/briefing-room/presidential-actions/2021/02/24/executive-order-on-americas-supply-chains/), may identify additional entities that warrant sanctioning and further bolster the integrity of U.S. supply chains. Yet, American policymakers must acknowledge that there are real limits to what they can accomplish. China has committed significant resources to building up the solar industry in Xinjiang, and pressure from Washington will not force Beijing to step back from its investments. Should the United States take a more assertive stance, there are real trade-offs to consider. The U.S. House of Representatives already passed the [Uyghur Forced Labor Prevention Act](https://www.congress.gov/bill/116th-congress/house-bill/6210) last September. If passed by the Senate and signed into law, it will ban all imports from Xinjiang unless there is clear and convincing evidence that products were not made by forced labor. While there is enough polysilicon production capacity [outside](https://www.seia.org/sites/default/files/2021-03/SEIA%20Response%20to%20Senators%20Rubio%20and%20Merkley%20%283.26.2021%29.pdf) of Xinjiang to satisfy current U.S. demand, this may change if the United States redoubles its efforts to adopt renewable energy. Delays in current solar projects may also be on the horizon; Canadian Solar warned investors that all panel imports from China now risk being [detained](https://www.bloomberg.com/news/articles/2021-08-16/canadian-solar-says-imports-detained-by-u-s-in-china-crackdown) at the U.S. border. Furthermore, there are limited mechanisms for tracking solar products through their entire production cycle, often leaving downstream companies and end users in the dark. The new [Solar Supply Chain Traceability Protocol](https://www.seia.org/research-resources/solar-supply-chain-traceability-protocol) promoted by the U.S. solar industry and recent moves undertaken by the [American Solar Manufacturers Against Chinese Circumvention](https://www.spglobal.com/platts/en/market-insights/latest-news/electric-power/081821-us-solar-group-alleges-chinese-manufacturers-improperly-avoid-tariffs) to extend tariffs to Chinese solar giants operating out of Southeast Asia should help to establish best practices for businesses. However, this will only go so far. Companies must still navigate an opaque environment where Chinese counterparts are not inclined to offer greater transparency. China also has options in its toolbox, and its policymakers have begun to implement countermeasures to safeguard the interests of Chinese companies. Although the specifics remain murky, the new [anti-foreign-sanctions law](https://www.wsj.com/articles/china-passes-law-to-counter-foreign-sanctions-11623327432?mod=article_inline) appears to empower Beijing to seize assets within China, revoke visas, and perhaps most importantly block transactions and cooperation with Chinese individuals and entities. As is so often the case, the best path forward for the United States is to play to its strengths and leverage its network of allies and partners around the globe. Whatever further steps Washington ultimately advances, it should do so in consultation with like-minded nations. Collective action will amplify the effect of U.S. measures aimed at countering human rights abuses and set the groundwork for developing alternative capacities that, in time, will help promote a more diverse solar supply chain.

Correction, Sept. 2, 2021: A previous version of this piece misstated the industrial role and opening date of the JinkoSolar processing facility at the Xinyuan Industrial Park.
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