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Human rights allegations in Xinjiang could jeopardize solar supply chain



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An ethnic Uighur woman arranges raisins at a stall with a billboard showing the late Communist Party leader Mao Zedong. The U.S. government says Beijing is committing human rights abuses against Uighurs and other Muslim minorities in the China's autonomous Xinjiang region.

Source: Kevin Frayer/Getty Images News via Getty Images

The solar industry's growing dependence on China's autonomous Xinjiang region for a critical raw material poses mounting risks to a wide range of companies as the U.S. government moves to confront Beijing over alleged human rights abuses there.

In 2019, when solar ranked as the world's top source of new power generating capacity, about one-third of the polysilicon the industry used to make solar panels came from Xinjiang, according to Johannes Bernreuter of Bernreuter Research. China as a whole accounts for about 80% of global capacity. With polysilicon-makers boosting production in Xinjiang, Richard Winegarner, a former industry analyst who retired in late 2019, said the region is poised to become "even more important" to the solar market in the coming years.

Those deepening ties come as Washington's scrutiny of labor conditions in the region intensifies. On the heels of a U.S. government report that described rampant abuse of Uighurs and other Muslim minorities in Xinjiang, the U.S. House of Representatives passed a bill in September that would ban goods made "wholly or in part" in the region unless the producers were proven not to have used forced labor. The near-unanimous vote came a week after U.S. Customs and Border Protection ordered officers to seize certain imports from Xinjiang, including cotton and computer parts.

Sen. Marco Rubio, a Republican member of the Committee on Foreign Relations who introduced a companion bill to the House legislation, said in September that the U.S. "must ensure that goods stained with forced labor stop entering our supply chains." Rubio's bill, which has 19 co-sponsors, including six Democrats, was referred to the Committee on Foreign Relations in March.

A spokesperson for Joe Biden said in August that the Democrat presidential nominee believed that the Chinese government is committing "genocide" against Uighur Muslims in Xinjiang.

Beijing denies it is committing human rights abuses.

Red flags

In light of the allegations, human rights advocates are calling for blanket trade restrictions on Xinjiang like those pushed by Rubio and the House

of Representatives.

"Within the context of labor, a red flag goes up for every single sector," said David Schilling, senior program director of human rights and resources at the Interfaith Center on Corporate Responsibility. "It's not just those [industries] that have been called out."

That echoes an assessment by staff for the Congressional-Executive Commission on China, a panel of U.S. lawmakers and administration officials that monitors human rights in that country. The report, released in March, found that forced labor in Xinjiang is "widespread," and independent audits are impossible to perform.

While human rights advocates have said they are not aware of public reports directly implicating polysilicon-makers in labor abuses, without independent audits, American solar companies could find they are unable to meet U.S. requirements.

S&P Global Market Intelligence reached out to more than two dozen solar consumers, investors, ratings agencies, project developers, polysilicon producers and equipment manufacturers. Only a handful responded to requests for comment; none provided detailed information about their efforts to examine potential exposure to labor abuses in Xinjiang or to safeguard their supply chains in the region.

In response to questions from Market Intelligence, John Smirnow, vice president of market strategy at the Solar Energy Industries Association, the top U.S. trade group for the industry, said the association is "strongly encouraging companies to immediately move their supply chains out of the region." The association is also relaunching an initiative to raise "awareness and action within the industry on the importance of ensuring ethical supply chains."

"The reports of human rights violations out of the Xinjiang region are reprehensible, and we support efforts in the U.S. Congress to stamp out these abuses," Smirnow said in an emailed statement.

The threat of additional import bans on Xinjiang should worry solar investors, said Clayton Allen, senior vice president of trade, policy and geopolitical risk at research firm Height Capital Markets, "especially in an industry that doesn't have a lot of diversity in its supply chain already."

In addition to the political risks, just doing business with Xinjiang can have reputational costs, Allen said, noting the outcry that The Walt Disney Co. faced this year over its decision to film part of the movie *Mulan* in the region.

"I have not heard any accusation that Disney was utilizing forced labor or contributing to human rights violations, [but] just the relationship with the government was enough to drive this big massive backlash," Allen said. "And for investors, that's almost as scary, because you don't want to be doing business with a company that has that sort of a negative profile."

The danger of costly disruptions to the solar supply chain are emerging at a time when many of America's biggest companies are turning to the industry to help cut their greenhouse gas emissions.

Apple Inc., the top corporate purchaser of solar power in the U.S., said in response to an inquiry from Market Intelligence that it is investigating the materials used in its solar installations.



Solar cells on an assembly line in a factory in China.
Source: Ryan Pyle/Corbis Historical via Getty Images

US warnings

By 2021, five companies in China and Hong Kong will control two-thirds of the world's polysilicon market, according to Dennis Ip, an analyst at Daiwa Capital Markets Hong Kong Ltd.

One of those is Xinjiang-headquartered Daqo New Energy Corp., the only company in the group with a U.S. stock listing.

Drawn to Xinjiang by cheap electricity from coal-fired power plants, Daqo started building polysilicon plants in Xinjiang in 2011 as a trade fight over solar equipment was heating up between Beijing and the Obama administration.

In recent annual reports to the U.S. SEC, Daqo said it "enjoys additional advantages in the costs of electricity" because the regional power grid is

operated by a division of Xinjiang Production and Construction Corps, or XPCC, which the U.S. government describes as a paramilitary organization.

The U.S. Treasury Department sanctioned the XPCC in July in connection with "serious rights abuses." Before that, the XPCC was added to a U.S. Commerce Department "entity list" in 2019 after the government determined that the group was "acting contrary to the foreign policy interests of the United States." The U.S. departments of State, Treasury, Commerce and Homeland Security warned businesses in July that engaging with companies on the Commerce Department's entity list could trigger law enforcement action.

Analysts said the XPCC's role in Xinjiang's economy underscores the difficulty companies face trying to ensure their supply chains in the region are not in jeopardy. "Even if the company that is producing the semi-finished product that you're using as an input for your production of solar panels" is not implicated in labor abuses, "you don't know what's upstream from them," Allen said.

The U.S. government has also provided companies with a list of "potential indicators of forced labor or labor abuses." They include "any mention of internment terminology" such as education training centers "coupled with poverty alleviation efforts, ethnic minority graduates, or involvement in reskilling," according to an advisory from the departments of State, Treasury, Commerce and Homeland Security.

In an annual report published earlier this year, GCL-Poly Energy Holdings Ltd., another top polysilicon producer, said it began a "staff localization plan" in Xinjiang in 2019 in cooperation with vocational schools in the area. At the end of 2019, the company said it employed about 120 people from "ethnic minority groups."

GCL-Poly told Market Intelligence that its Uighur employees are provided with special benefits, including holidays and access to a halal restaurant.

If the U.S. government links a polysilicon company to labor abuses, Customs and Border Protection could seize shipments of solar cells and panels that contain the raw material from that producer, and under the Tariff Act of 1930, importers could be criminally investigated. Customs and Border Protection cited the law in September when it ordered the seizure of certain imports from Xinjiang and palm oil products and derivatives from a company in Malaysia.

To make a seizure, Customs and Border protection only needs information that "reasonably" indicates the use of forced labor.

China watchers see such evidence throughout Xinjiang's economy, and the U.S. government has said that to comply with existing law, companies have few options but to cut Xinjiang out of their supply chains entirely.

Further complicating matters, the solar industry may not be able to address Washington's concerns simply by sourcing polysilicon from other parts of China. Uighurs have been forcibly transferred from Xinjiang to work elsewhere in the country, according to the Australian Strategic Policy Institute, which is partially funded by the U.S. government. And within the solar industry, polysilicon buyers often mix material from multiple producers, said Winegarner, making it difficult to trace the polysilicon in an individual solar panel back to its source.

"If there is some risk of forced labor ... it's going to be very hard to identify, and so the question is, are these companies receiving goods that potentially could be seized?" said Amy Lehr, director and senior fellow of the Human Rights Initiative at the Center for Strategic and International Studies in Washington. "If they're unable to confirm the labor conditions in factories they're sourcing from, that puts them at significant risk."

'I don't think they're giving it any attention'

Those risks reach beyond solar equipment manufacturers and power plant developers to some of America's biggest consumer brands.

In 2018, for example, one of Daqo's long-time customers, JinkoSolar Holding Co. Ltd., landed a blockbuster contract to sell solar panels to U.S. renewable energy giant NextEra Energy Inc. A year later, in early 2019, Alphabet Inc.'s Google LLC said it agreed to buy electricity from solar farms built by NextEra subsidiary NextEra Energy Resources LLC.

Google's connection to Xinjiang's polysilicon industry represents the sort of risk that is drawing more scrutiny in boardrooms and on Wall Street with the rise of environmental, social and governance investing.

"It's not just the product that lands on the shelf" that needs to meet ESG standards, Audrey Choi, Morgan Stanley's chief sustainability officer, said at a renewable energy conference in September. "It is that whole value chain that needs to be aligned."

As of June 30, Morgan Stanley was a shareholder in Daqo. When asked, the firm would not say what, if anything, it is doing to ensure the polysilicon-maker's supply chains are not at risk.

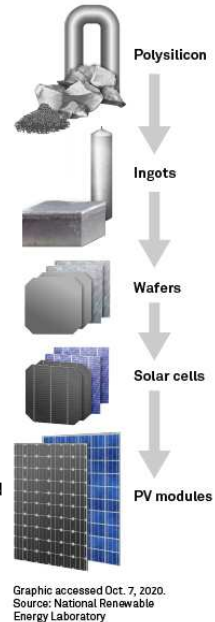
Daqo said there are no human rights issues in the part of Xinjiang where it operates. "The cities/region in question are in Southern Xinjiang," the company said in a statement to Market Intelligence.

JinkoSolar COO Zhiquan Xu said in a statement that the company "condemns the use of forced labor and does not use it in any of its facilities." One of the leading solar-panel shippers to the U.S. during the third quarter, JinkoSolar operates a factory in Xinjiang and is on the board of the Solar Energy Industries Association, the U.S. lobbying group.

NextEra did not respond to a message seeking comment.

Google, Amazon.com Inc. and Target Corp., three of the country's leading corporate purchasers of solar power, also did not respond to messages

From polysilicon to panels



seeking comment. Walmart Inc., another top corporate buyer, said it buys electricity from solar farms rather than the panels themselves. "However, we have zero tolerance for forced labor and protecting the dignity of workers and addressing forced labor is a priority for Walmart," a spokesperson said.

Without pressure from customers and investors, the solar market's ties to Xinjiang have been overlooked or ignored by an industry that is laser-focused on cutting costs, said Dustin Mulvaney, a professor at San Jose State University who teaches courses on energy and sustainability.

"I think the climate conversation is just such a loud voice that no one's really interested in playing this story out," Mulvaney said. "I don't think they're giving it any attention."



An Extinction Rebellion environmental protest outside Google in London.

Source: Ollie Millington/Getty Images News via Getty Images

Years of tariffs

U.S. companies are trying to take back some of the polysilicon market from China, but that alone will not solve the problem America's solar industry is facing. Even if the U.S. produced enough of the raw material to meet domestic demand, it does not have the factories it needs to turn polysilicon into the wafers and cells that ultimately get assembled into solar panels. Chinese companies dominate those steps of the supply chain as well.

It is an issue the U.S. has been trying to address, by degrees, for nearly a decade.

In 2018, the Trump administration imposed sweeping import tariffs to try to push cell- and panel-makers to set up shop in America. In the wake of those new taxes, some companies opened U.S. factories to assemble panels, but they still rely on cells shipped in from abroad.

SunPower Corp. Chairman and CEO Tom Werner told the U.S. International Trade Commission in 2019 that the country lacks the kinds of incentives that attracted manufacturers to Asia.

"We definitely are looking into ... a value chain outside of China," Tore Torvund, CEO of polysilicon-maker REC Silicon ASA, said on an earnings call in July. "But it will take time to make it." The company is trying to develop a complete solar supply chain in Washington state.

With its U.S. operations hobbled by a yearslong trade fight between Washington and Beijing, REC Silicon said polysilicon, which is also used in semiconductors and batteries, should be viewed as a strategic material by the U.S. as the country tries to compete with China.

Bradford Ward, former deputy general counsel in the Office of the United States Trade Representative and the lawyer for a group of American polysilicon companies that is trying to reclaim market share from China, said he believes that the U.S. government is "becoming aware of the scale of the polysilicon industry in Xinjiang and the relevance of Xinjiang polysilicon to the global solar value chain and U.S. solar installations."

But so far, the solar industry and lawmakers in the U.S. have not found a way to stand up a supply chain to rival China's.

Tariffs, the tool American policymakers often turn to when they want to support domestic industries, are rarely effective, said Paula Mints, chief solar analyst at SPV Market Research. On Oct. 10, President Donald Trump said he was tightening trade restrictions on the U.S. solar industry, claiming that domestic manufacturers need more help almost three years after his administration imposed tariffs.

"Building up a complete solar value chain in the U.S. ... could be a lever" to guard against potential labor abuses in Xinjiang, Bernreuter said, "but I doubt that such an industry would be able to be price-competitive."