THIRD WAY

Securing U.S. Clean Energy: Managing Risks in Partnerships with China

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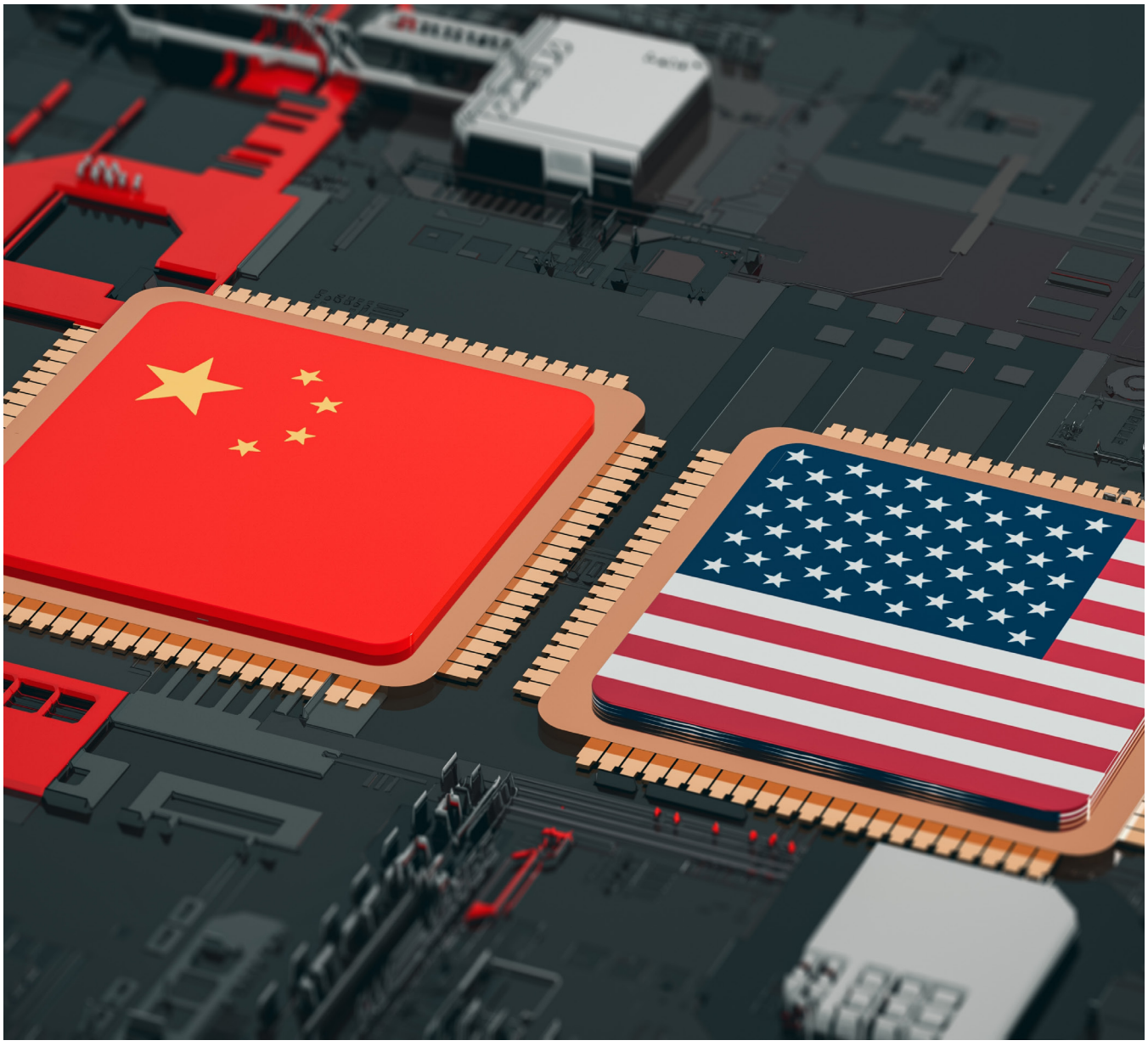

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Executive Summary

The United States is at a pivotal moment in clean energy investment and policy, with significant changes to public funding and regulatory efforts aimed at reshoring supply chains and advancing domestic technological leadership. Managing risks associated with Chinese firm participation in U.S. clean energy projects is crucial to safeguarding national security, intellectual property, and economic competitiveness. This report identifies, measures, and provides policy recommendations to mitigate risks related to Chinese engagement in federally supported clean energy projects—specifically, investment and technology partnerships—and identifies opportunities to maximize U.S. advantages.

Over the past two decades, Chinese firms have become dominant global players in clean energy technologies, particularly in solar, battery storage, and electric vehicles (EVs). With extensive government support, these companies have developed competitive supply chains and cost advantages. Consequently, Chinese firms are increasingly involved in the U.S. clean energy market in roles ranging from technology licensors to joint venture partners and subsidiary operators. While these collaborations can accelerate technological development and bring investment, they also raise critical concerns:

1. **Intellectual Property Risks** – U.S. firms risk losing proprietary innovations through technology transfer requirements, joint ventures, and partnerships with Chinese firms that may have opaque governance structures.
2. **Supply Chain Vulnerabilities** – Dependence on Chinese components, especially for critical minerals and batteries, leaves the U.S. susceptible to supply disruptions, unfair trade practices, and geopolitical risks.
3. **Facility and Community Security** – The presence of Chinese-owned or affiliated manufacturing sites in the U.S. has raised concerns over foreign land ownership, local employment impacts, and security risks.
4. **Technological Data Security** – The digitization of energy infrastructure introduces risks of data privacy violations and cybersecurity threats linked to Chinese firms.
5. **Dual-Use Applications** – Some clean energy technologies have potential military applications, heightening concerns about Chinese firms' ties to China's military-industrial complex.

Federal government supports vary by type—such as loans, grants, and tax credits—and statutory authority. Furthermore, the exact relationship of Chinese firms to U.S. projects may be difficult to unpack, bringing complex regulatory and oversight duties to federal agencies. Agencies and authorities explored in this study include Department of Energy and Treasury Department administered loans, grants and tax incentives, and the subset of these programs with more explicit restrictions on Foreign Entities of Concern (FEOC).

Managing trade and investment implications of these projects falls under the purview of the Commerce Department, U.S. Trade Representative and the Committee on Foreign Investment in the U.S. (CFIUS). Finally, select defense and security measures by the Department of Defense can lead to prohibitions on Chinese-origin technologies in critical infrastructure. Despite these efforts, further adjustment is needed and gaps remain in enforcement, transparency, and strategic policy for clean energy engagement with China.

This study outlines a two-pronged strategy for enhancing policy to address these concerns:

1. **Minimizing Risk**

- Strengthen intellectual property protection through technology management plans in federally supported projects.
- Diversify supply chains by incentivizing alternative sources for critical minerals and components.
- Increase transparency in supply chain reporting and enforcement of forced labor import bans.

2. **Maximizing U.S. Advantage**

- Encourage technology licensing agreements that keep U.S. firms in control of IP while leveraging Chinese expertise.
- Guide state and local governments on structuring incentives that ensure U.S. economic and security benefits.
- Promote workforce development and community investment in clean energy projects to ensure long-term economic gains.

In adopting a targeted policy approach that strengthens regulatory oversight, encourages supply chain resilience, and prioritizes domestic innovation, the U.S. can mitigate risks and establish leadership in developing and manufacturing technologies for the global clean energy transition.

1. Introduction

Federal, state and local governments have ramped up financial support and other incentives for clean energy production in recent years that have driven record investments in manufacturing. These programs are key to efforts to reshore supply chains and accelerate technological development, but the management of risk—particularly around involvement of Chinese companies—will be critical to ensuring America's national security and economic competitiveness. The passage of the Bipartisan Infrastructure Law (BIL, 2021), Inflation Reduction Act (IRA, 2022), and One Big Beautiful Bill Act (OBBBA, 2025) made substantial changes to conditions on involvement of foreign entities in federally-supported projects. This study aims to identify, measure, and mitigate risks associated with Chinese company participation in government-supported clean energy projects, focusing on investment and technology partnerships. The ultimate objectives, in terms of policy recommendations, are to minimize risks while maximizing advantage for U.S. firms, communities and workers.

Over the course of the last two decades and with strong government backing, Chinese firms have become world-leading technology providers in key clean tech sectors such as electric vehicles, batteries, and solar panels. Furthermore, these firms are expanding globally through complex yet efficient global value chains. With the influx of funds toward U.S. domestic manufacturing and the growing demand in the U.S. market, Chinese firms are increasingly involved in a wide range of capacities, such as technology licensor, technology partner, joint venture partner, and U.S. subsidiary. In many of these cases, as documented in this study, domestic firms and communities have expressed strong desires for such partnerships as they help accelerate U.S. technological capabilities to the global frontier and bring investment and manufacturing jobs to communities.

The study examines five categories of risks to partnering with Chinese firms: (1) intellectual property creation and protection challenges for U.S. entities, (2) supply chain resilience challenges and unfair trade practices, (3) facility and community security concerns, (4) technological data security issues of privacy and control, and (5) dual-use applications and connections with the Chinese military.

Federal government supports vary by type—such as loans, grants, and tax credits—and statutory authority. Furthermore, the exact relationship of Chinese firms to U.S. projects may be difficult to unpack, including varying degrees of technology and investment partnerships, bringing complex regulatory and oversight duties to federal agencies. While the focus of the study is on federal regulation and oversight, state and local governments are also actively supporting a range of these projects—these represent opportunities for the federal government to play a role in risk mitigation and supporting communities to maximize benefits when engaging with Chinese firms.

This study is organized into several sections: First, it will draw from an historical perspective up to present day of ongoing or attempted engagements with Chinese firms and the concerns they have raised. Second, the relevant U.S. legislative and regulatory requirements for federally-supported projects as pertaining to Chinese participation will be detailed according to each agency's statutory authority. Next, a framework for analysis of partnership risks is developed followed by an assessment across electric vehicle, battery, and solar technologies, with further detail on key cases of partnership structures. Finally, it concludes with policy recommendations categorized according to minimizing risk and maximizing U.S. advantage.

2. History and Present Challenges of U.S.-China Clean Energy Engagement

The U.S. and China have engaged jointly in clean energy technology development, planning and deployment going back several decades. Much of this interaction began organically from firms choosing cross-national suppliers for technological components or through mergers and acquisitions (M&A). Accelerating in the first Obama administration, bilateral government initiatives provided additional support and structure to this engagement, while also tackling some thorny issues such as intellectual property protection. The long sweep of these efforts revealed a range of issues that have become problematic for engagement and motivate a wide range of policy recourses—some effective, while others less so.

2.1 Firm supplier relationships

Many key clean energy technologies, such as solar cells and lithium-ion batteries, were developed in U.S. laboratories, though U.S. manufacturers faced difficulties in scaling up commercial production. Basic science R&D does not necessarily translate to manufacturing process improvements necessary to reduce costs and increase economies of scale, revealing a key gap in the U.S. clean energy ecosystem. At various times in the developments of these technologies, comparative advantages appeared in advanced economies such as Germany and Japan, contributing to improvements in technological maturity. But it was the emergence of Chinese firms in the mid-2000s that fundamentally remade clean energy supply chains and generated production scale economies.

Early solar entrepreneurs who gained knowledge abroad returned to China to start up local production centers, variously relying upon imported equipment and later licensing before developing their own technologies. In particular, with some of the same products abroad, Chinese firms were able to innovate in terms of production processes and component supplier agglomeration. By 2009, 73 out of 100 solar firms in the U.S. did not have any in-house production, instead relying upon Chinese suppliers. Over the subsequent fifteen years, Chinese firms grew to dominate production across a wide range of clean energy technologies, contributing to the establishment of dominant designs for many of the available products today and generating per unit cost reductions of 70-90%.

Foreign-direct investment (FDI) and more generally cross-border financing between the U.S. and China played an important role in this early scale-up. Several of the pioneering Chinese solar firms listed on U.S. stock exchanges and worked with U.S. financial institutions to raise capital. These capital injections complement what was provided by local governments to build local industrial capabilities. For solar, these firms were also buoyed by the enormous demand and financial subsidies for products in Europe, the U.S. and elsewhere.

Clean technology sectors also contained joint ventures (JVs) between U.S. and Chinese firms operating in China, some in response to explicit JV or technology transfer requirements for market access. In wind, a select group—including GE—created local JVs to comply with these rules and established R&D centers. For internal combustion vehicles, due to regulatory requirements by Chinese authorities, foreign automakers were required to partner with local firms. For EVs, however, China's premier automakers are mostly private or fully Chinese-owned spinoffs of state-owned automakers. In this sector, furthermore, notably Tesla has set up a wholly foreign-owned enterprise in China drawing on local supplier networks.

Even as China has come to dominate clean energy technologies, its firms have also globalized production—responding to global comparative advantage and changing requirements in export destinations such as tariffs and local content. U.S. manufacturers facing stiff competition sought to reduce imports of solar panels and wind components and the U.S. International Trade Commission (ITC) responded with tariffs on imports from select Chinese suppliers (as well as select suppliers in other countries). Chinese firms built out production facilities in Southeast Asia and other geographies, which were later accused of trade duty circumvention and levied additional tariffs. Globalized Chinese firms are now spreading to every continent, creating a network of supplier and customer relationships, which have helped them to remain competitive (by shifting to lower-cost geographies) as well as gain closer access to key consumer markets.

2.2 Bilateral government initiatives

Formal bilateral initiatives in R&D are supported by the U.S.-China Science and Technology Cooperation Agreement (STA), first signed in 1979. It is an umbrella agreement with 40 sub-agreements in various areas, including energy. The STA has been modified several times over the last four decades, including adding provisions on intellectual property. It is generally understood to provide an enabling framework for S&T cooperation without mandating activities or promoting any specific initiatives. The STA has officially lapsed after one brief extension and is currently being renegotiated.

Clean energy cooperation was enhanced during the first Obama administration. The U.S.-China Strategic and Economic Dialogue (S&ED) was established in 2009, building on the earlier Strategic Economic Dialogue (SED), with the goal of facilitating economic and trade cooperation. In the same year, the U.S.-China Energy Cooperation Program (ECP) was launched by 24 U.S. companies and supported by the two governments. ECP has hosted meetings in areas such as renewable energy, storage and transportation.

The flagship bilateral initiative was the U.S.-China Clean Energy Research Center (CERC), founded in 2011 and which committed funding from both governments to joint R&D through specific centers on building energy efficiency, advanced coal technology, and

clean vehicles. This effort reflected the evolving interests and capabilities of Chinese researchers and firms in moving beyond manufacturing into R&D. After it concluded in 2020, participants noted that it helped provide U.S. firms access to "unique experimental platforms" in China.

During the Biden administration, bilateral clean energy initiatives continued at a much lower level. The U.S.-China Glasgow Declaration in 2021 highlights shared interests in the clean energy transition with a large focus on policies and regulations. It established several working groups which met infrequently before being paused in 2022. The Sunnylands Statement in 2023 established more specific terms for energy cooperation, encouraging the joint development of five large-scale carbon capture, utilization and sequestration (CCUS) projects each. Other areas of clean energy such as renewable energy and clean vehicles were not targeted for technological cooperation.

2.3 Key issues arising in engagement to date

Intellectual property (IP) theft and forced technology transfer have been long-standing concerns of the U.S. government with respect to collaborations between U.S. and Chinese firms. The most notable case of IP theft in clean energy occurred in 2011 between American Semiconductor and Chinese wind turbine manufacturer Sinovel, for which Sinovel lost in both U.S. and Chinese courts. Since that time, there is evidence that China is improving its domestic enforcement regime for IP protections particularly when it comes to foreign firms. The larger concerns, as outlined in the USTR Section 301 report, relate to foreign ownership restrictions and opaque administrative licensing and investment approval processes—often seen as technology in exchange for market access. These restrictions have been notable in energy sectors, e.g., joint venture requirements on automobile production, core technology transfer requirements for new energy vehicle joint ventures, and local content requirements for access to wind sector subsidies.

Government subsidies have generated significant concerns for the U.S. and other countries as China's exports of clean technologies increased, considering both unfair market practices as well as the potential for dumping. In solar, the U.S. has levied anti-dumping and counter-vailing duties (AD/CVD) since 2012, followed by the European Union a year later. More expansive Section 201 safeguard tariffs were later put on solar imports from China and circumvention tariffs on select Chinese suppliers operating in third countries. More solar tariffs are being requested by some U.S.-based suppliers to which the ITC has preliminarily agreed. In wind, the U.S. imposed AD/CVD tariffs on towers on firms from China and from multiple other counties including Canada. Section 232 tariffs on steel and aluminum imports from most countries including China also indirectly impact the manufacturing and deployment of clean tech. In May 2024, the Biden administration introduced new tariffs on imported Chinese products under Section 301 authority, including 50% on solar cells, 25% on batteries and 100% on EVs. The European Union has increased

tariffs on imported Chinese EVs as well, though at lower rates based on firm-specific calculations of subsidies.

The U.S. clean energy supply chain integration with China has also prompted a variety of national security concerns, including data privacy, energy security, critical infrastructure, facility security, and dual use. The only public assessment of the dual use applications of clean tech was published in 2010, indicating very few technologies were implicated. High-performance batteries are now being scrutinized though as yet no extensive restrictions exist. Energy security, such as the threats to U.S. energy availability in the event that China restricts or embargoes certain exports, are fundamentally different than traditional definitions of the term, which lessens some of these concerns. Due to the sensitive location of some proposed facilities using Chinese clean technology, the Committee on Foreign Investment in the U.S. (CFIUS) has rejected a handful of applications for FDI. The allegations of forced labor abuse in Xinjiang have also implicated several clean tech sectors, notably polysilicon used in imported solar components. With the passage of the Uyghur Forced Labor Prevention Act (UFLPA), numerous shipments of solar panels have been detained at the border.

On the other hand, the increasing digitization of clean energy technologies have raised concerns over collection of sensitive data on U.S. citizens and infrastructure and as well as nefarious potential for connected components to disrupt critical infrastructures. These concerns appear muted in solar, wind and batteries. However, the ubiquity and increasing volume of sensors on vehicles has prompted the Department of Commerce to enact a regulation banning any vehicles with Chinese software or hardware utilized in broader connectivity and autonomous driving functions. These are linked to reported attempts by Chinese actors to infiltrate critical infrastructures.

In terms of research and development, the U.S. has raised concerns about research security, generally referring to efforts causing the improper flow of U.S. inventions to China. The now-abandoned China Initiative at the Department of Justice led mostly to failed cases and claims of bias, including a high-profile nanoengineering who worked in clean energy materials. However, due to increased sophistication of Chinese talent recruitment programs and the interlinkage of civilian and military institutions, the U.S. Office of Science and Technology Policy (OSTP) has established requirements for institutions receiving federal funding in terms of research security. Relatedly, researcher access and safety when traveling in China is of concern to U.S. officials and one of the sticking points in renewing the current STA.

2.4 Efforts to address engagement issues and remaining gaps

Due to repeated complaints by foreign governments as well as concerns of the business community, explicit local content requirements in clean energy have largely been abandoned in China. The policy may have been successful in the wind sector, but it was largely a failure in jumpstarting the EV industry as no major global automaker engaged in a JV with Chinese partners. Instead, Tesla secured an exemption for a wholly foreign-owned enterprise, and later the JV requirements for all EV firms were lifted. No U.S.-based solar module firms were able to get market access, despite a five-year attempt by First Solar to create a 2-GW project.

In terms of IP protections, engagement through trade dialogues such as the S&ED arguably helped to push improved enforcement within China, though gaps remained. The CERC was a novel break from prior strategies by requiring the establishment of Technical Management Plans that were signed off by governments and participating firms. Firms reported satisfaction with the approach.

A wide body of research shows that trade remedies in the solar sector did not lead to notable increases in U.S. manufacturing. The sophistication of global supply chains and the particular nature of solar processing allowed for effective responses to tariffs. Instead, tariffs on final components led to some shifting of module assembly to the U.S. reliant on imported intermediate products, which were also key points of contention when setting exemptions to the tariffs. Instead, it was generous manufacturing subsidies in the IRA and other legislation that led to domestic renaissance in solar and other clean tech production.

Remedies to security concerns are evolving and due to their nature are somewhat more opaque than the above issues. Chinese equipment has long been discouraged in bulk power grid applications, though regulations banning it have gone through different iterations and are under strategic review. Investment by Chinese firms in U.S. clean tech manufacturing or deployment projects faces uncertain restrictions, in part due to the opaque nature of CFIUS but also due to the potential for enhanced restrictions to qualify for U.S. subsidies. Forced labor prevention rules have been largely effective in the solar sector in shifting production of polysilicon inputs away from the targeted region toward other parts of China and even Germany, and in part to relocate wafer production outside of China. Research security is an evolving area of policy, which will have impacts on cross-national collaborations of researchers and firms, though it may take years for these impacts to be visible.

3. Relevant U.S. Legislative and Regulatory Requirements

Numerous agencies have statutory authority to regulate the involvement of Chinese firms and technologies in clean energy projects in the U.S. The emphasis here is on incentive programs for developing clean energy manufacturing facilities or the deployment of clean energy equipment—with applications to solar, batteries and/or electric vehicles—which typically fall under one of three types: grants, loans, or tax credits. Restrictions on Chinese involvement outside of these incentive programs are included where they are especially salient. This section does not include treatment of trade remedies under U.S. Trade Representative authority. Definitions of Foreign Entities of Concern (FEOC) apply to multiple agencies and rules and thus have their own section.

The basic structure of this analysis first identifies the legislative requirements within the authorizing legislation. Then, it highlights relevant regulatory implementations, including executive orders and formal rule-making, and/or relevant projects. The full list is in the appendix.

3.1 Department of Energy (DOE)

The DOE administers both loans and grants in clean energy technology. Initially authorized by the Energy Independence and Security Act of 2007, the Advanced Technology Vehicles Manufacturing Loan Program (ATVM) provides funds for providing direct loans to manufacturing facilities for advanced technology vehicles that emit low or zero exhaust emissions. The IRA removed the $25 billion cap on ATVM loan authority and appropriated $3 billion in credit subsidy to support the loans offered through this program. The DOE Loan Programs Office (LPO) announced a conditional commitment to Li-Cycle U.S. for a $375 million loan to help finance the construction of the a lithium-ion battery resource recovery facility in North America. The loan application has faced some difficulties and is still under negotiation. LPO has also announced a conditional commitment of up to $1.2 billion for a direct loan to ENTEK Lithium Separators for a facility to manufacture lithium-ion battery separators. ENTEK has an agreement to be the sole supplier of separators to KORE Power's Arizona facility in 2025.

The Battery Manufacturing and Recycling Grants Program, authorized by the BIL, provides for up to $6 billion of federal funding for battery material processing and battery recycling facilities. According to language in the BIL, the grants should prioritize entities that are U.S.-owned, located, and operated; deploy North American-owned intellectual property and content; represent consortia or industry partnerships; and do not use battery material supplied by an FEOC. Across two rounds, DOE has announced over $4 billion for 41 projects.

3.2 Treasury Department

The Treasury Department administers key tax credits for clean energy. For the purchase of clean vehicles, three credits were established for new (30D), previously owned (25E), and commercial (45W) clean vehicles. Following the passage of the OBBBA and Executive Order 14315, the timelines for eligibility for these credits were reduced and phased out for vehicles acquired after September 2025. For 30D, consumers meeting certain income requirements could receive up to the full $7,500 credit if both critical mineral and battery component requirements are met: (a) beginning in 2023 and increasing by 10% per year, 40% of the critical minerals must be extracted or processed in the U.S. or a free trade partner; and (b) beginning in 2023 and increasing by 10% per year, 50% of the final battery assembly must take place in North America. Both 30D and 25E, no component or mineral may be supplied by an FEOC. For commercial clean vehicles (45W), purchasing a vehicle for commercial purposes could be eligible for tax credit of between $7,000 and $40,000. Leasing a vehicle would qualify as commercial purposes provided it meets certain requirements. No FEOC restriction applies to 45W.

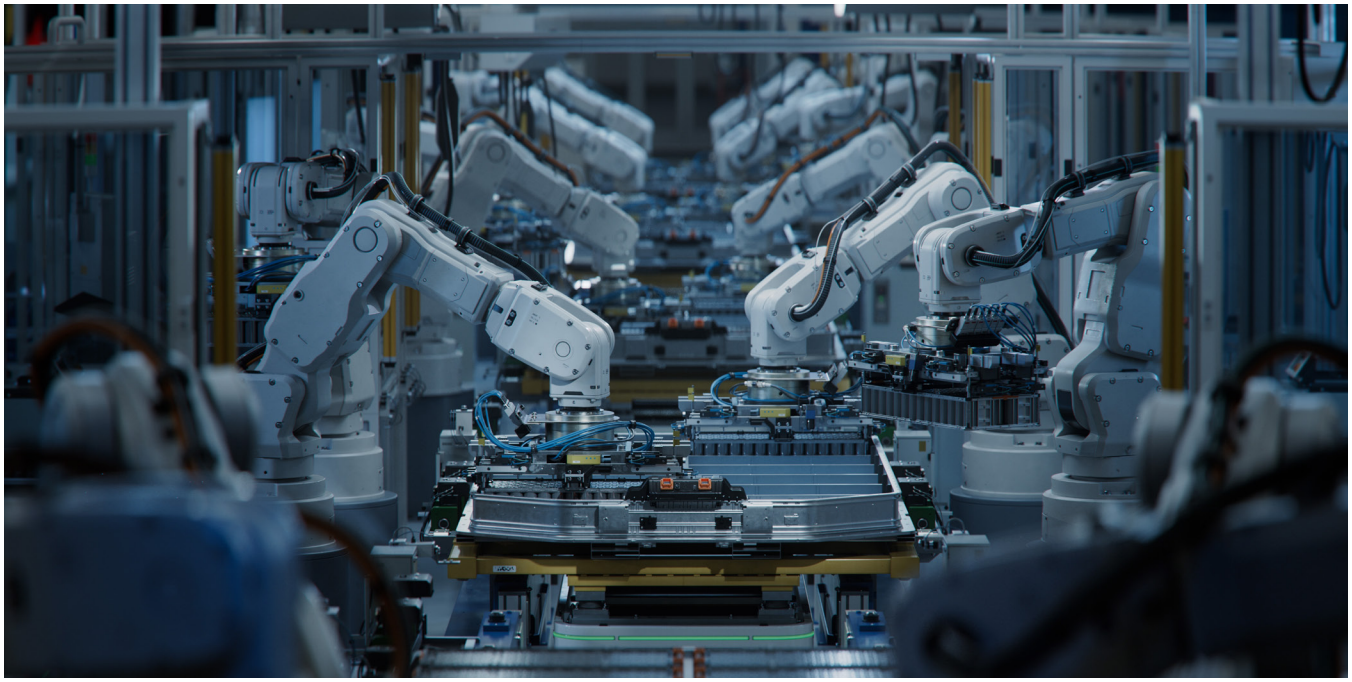
For clean electricity facilities, two main tax credits are provided: Clean Electricity Production Tax Credit (45Y) and Clean Electricity Investment Tax Credit (48E). Under OBBBA, the timeline for eligibility was reduced from 2032 to projects in service by 2027. For both credits, a base amount is provided to facilities which will increase by five-fold if projects meet prevailing wage and apprenticeship requirements, up to 1.5 cents/kWh or 30% of investment costs for 45Y and 48E, respectively. Apprenticeship requirements are that a sufficient proportion of workers come from registered apprenticeship programs, as determined by the National Apprenticeship System. In addition, certain bonus credit adders can increase the value of tax credits: 10% bonus for domestic content, 10% bonus for locations in energy communities, and 10-20% bonus for locations in low-income communities. OBBBA introduces new material assistance requirements related to foreign entities (explored below under FEOC), though these have not been implemented via regulations as of this date.

For manufacturing facilities, two main tax credit options are provided: Qualifying Advanced Energy Project Tax Credit (48C) and Advanced Manufacturing Production Tax Credit (45X). For advanced energy projects (48C) related to solar related components, industrial decarbonization, and critical materials, up to 30% investment tax credit is available if they meet labor requirements. Advanced manufacturing credits (45X) apply to facilities producing solar or wind energy components, battery components, inverters, or select critical minerals. The exact amounts vary based on the component. The two credits cannot be combined. Manufacturing facilities are only eligible for full 45X tax credits if they meet prevailing wage and apprenticeship requirements. OBBBA mandates that credits are phased down and also includes material assistance requirements at different points depending on the technology from 2027 to 2034 .

The Treasury is also home to the Committee on Foreign Investment in the United States (CFIUS), created by the Defense Production Act (DPA) and subsequently expanded to allow for prohibiting certain transactions where foreign entities gained a controlling interest over U.S. businesses. This jurisdiction was expanded in the Foreign Investment Risk Review Modernization Act of 2018 (FIRRMA) to include non-controlling transactions in (a) critical technologies, (b) critical infrastructure, and (c) involving sensitive personal data. In the CFIUS 2018 regulation implementing portions of the law, it requires mandatory declarations for certain foreign investment transactions involving critical technologies, which includes battery manufacturing. In a 2022 executive order, President Biden further directed CFIUS to consider the effects of "foreign investment on domestic capacity to meet national security requirements, including those requirements that fall outside of the defense industrial base." The EO highlights special attention to critical minerals and U.S. manufacturing capabilities in advanced clean energy.

3.3 Department of Defense (DOD) and Defense Authorities

The DOD and related defense authorities have restrictions regarding Chinese involvement in clean energy technologies as well as incentives to produce non-China supply chains. In the 2020 National Defense Authorization Acts (NDAA), mass transit agencies were banned from using federal funds to purchase rail cars or buses from Chinese companies, even if they have a manufacturing facility in the U.S. If they purchase using their own funds, they will be penalized by revoking certain federal transportation funds in that year. This was largely seen as targeting BYD, which opened a manufacturing facility in Los Angeles for electric buses. Following the 2021 NDAA, the DOD also manages a list of "Chinese military companies" to which the major battery maker CATL was added in January 2025. The exact impact of this designation on CATL's U.S.-based technology transfer operations is unclear.



On critical minerals, DOD is authorized by the 2024 NDAA to create stockpiles and ensure that DOD supply chains do not rely on China. DOD is also actively investing in rare earth elements (REE) and magnet processing facilities beyond strictly defense supply chains. For example, M.P. Materials received DOD funding for REE processing and IRA subsidies for rare earth magnet manufacturing that will feed into GM electric vehicles.

Through the DPA Title III, the President is authorized to address a "domestic industrial base shortfall," which consists of an industry that is essential to national defense where the U.S. cannot provide the capability in a timely manner. These actions can include loans, purchases, grants and subsidies. DOD used DPA authority to provide grants to REE facilities, and DOE was directed to use DPA to support domestic production of other clean energy technologies such as solar panels and heat pumps.

3.4 Foreign Entities of Concern (FEOC)

The BIL and the IRA both contained provisions regarding the participation of FEOC in battery supply chains in order to qualify for tax credits, grants and other incentives, defined as an entity "owned by, controlled by, or subject to the jurisdiction or direction of a government of a foreign country that is a covered nation." The OBBBA expanded the scope of these provisions and applied them to clean electricity tax credits (45Y, 48E) and advanced manufacturing tax credits (45X). China is a covered nation. In May 2024, DOE released interpretive guidance for FEOC:

- Firm incorporation under the laws of country is considered under its jurisdiction.
- Corporate boards containing senior current or former foreign political figures are considered under government direction.
- Board seats or equity interests by foreign entities greater than 25%, even for a U.S.-incorporated firm, are considered control.
- "Effective control" through contractual arrangements could constitute an FEOC, such as determining production quantities, independently operating and maintaining equipment, and holding on to IP or data critical to production.

Beyond the interpretive rule, DOE reserves the right to consider additional criteria for foreign control under BIL statutes. Treasury has adopted the DOE definition when considering whether tax credits such as 30D are "FEOC-compliant".

OBBBA expanded FEOC provisions and introduced a new threshold for "material assistance" from a foreign entity:

- Material assistance cost ratio (MACR), defined as the percentage of total direct costs (materials and components, depending on provision) not by a foreign entity, must exceed certain increasing thresholds

Material assistance requirements apply to:

- Clean electricity tax credits (45Y, 48E), increasing over time from 40% up to 60% by 2030 (energy storage faces higher thresholds)
- Advanced manufacturing tax credits (45X), higher for battery and wind components, lower for solar and storage components, and 0% for critical minerals through 2030 and increasing thereafter

No implementing regulations for these requirements have been released as of this date.

3.5 Department of Commerce (DOC)

Under the International Emergency Economic Powers Act (IEEPA), the President can declare a national emergency "to deal with any unusual and extraordinary" foreign threat to the United States' national security, foreign policy, or economy. It provides broad powers to regulate or restrict:

- Foreign transactions: Transactions or transfers through banking institutions or involving foreign currency.
- Transactions involving foreign interests: Acquisition, importation, inter alia, involving any transaction in which a foreign government or national has an interest.

The Trump Administration applied this in an executive order to Information and Communications Technology and Services (ICTS) supply chains, noting that national security risks were identified from foreign adversaries which are "creating and exploiting vulnerabilities in information and communications technology and services," presenting risks of sabotage and catastrophic effects on critical infrastructure resilience. It granted DOC the authority to mitigate these effects by prohibiting and requiring approval of transactions in ICTS.

In January 2025, DOC finalized a rule to extend this authority to "connected vehicles." Specifically, DOC will prohibit transactions of Vehicle Connectivity System (VCS) hardware and covered software of VCS or Automated Driving Systems (ADS) by China or Russia. The rule covers multiple components, to take effect variously from 2027 to 2030:

- VCS Hardware: Including microcontrollers, networking components, antennas
- VCS or ADS Software: Including operating systems, machine learning algorithms. Does not include open source software.
- Vehicles incorporating covered hardware of software

Given the commonplace incorporation of VCS and ADS in today's EVs, the rule effectively bans Chinese EVs in the U.S., and the incorporation of selected Chinese-origin hardware or software into EVs sold or manufactured in the U.S.

4. Framework for Analysis of Engagement Risks

Based on this review of prior engagements and concerns, three key dimensions appear to be most impactful to consider in the context of regulating partnerships with Chinese firms:

1. Technology and sub-technology type, where applicable
2. Incentive or regulatory mechanism (e.g., grant, loan, tax credits, etc.
3. Partnership structure between U.S. and Chinese firms (e.g., joint venture, licensing agreement, etc.)

Previous literature has examined risks of integration with China writ large, inclusive of a range of socio-economic impacts. Building on the variety of concerns related to Chinese engagement in U.S. clean energy projects, specifically in reference to investment and technology applications, five categories of risks have been identified in this study:

1. **Intellectual property.** Contractual terms and informal practices that might undermine the creation and protection of U.S. IP.
2. **Supply chain resilience and trade practices.** Upstream component supplier relationships, reliance and potential bottlenecks, and the potential for unfair trade practices prioritizing select foreign suppliers.
3. **Facility and community security.** Concerns of Chinese land and facility ownership and presence of Chinese employees in the community.
4. **Technological data security.** Potential violations of privacy through collection of sensitive U.S. citizen data and risks for critical infrastructure disruption due to control of key technologies.
5. **Dual-use applications.** Connections between Chinese firms and the Chinese military and the potential for enhancing military capabilities.

For each of these risks, general concerns are tabulated as well as concerns arising specifically due to the nature of the technology, policy mechanism and/or partnership structure. Based on a review of existing and proposed projects with Chinese involvement, the different contours of these relationships are examined.

The framework is first used to assess efforts to minimize risk. While the U.S. rapidly expands its domestic clean energy supply chains and its use of "friend-shoring", it is inevitable some American companies will choose to involve Chinese-based firms or technologies in certain projects, owing to China's dominance in current supply chains and leading technological advantages. The ensuing analysis examines how existing and new policy tools can be used to address acute economic and security risks that might be present in different types of collaboration between U.S. and Chinese firms.

Beyond protecting national interests, the U.S. should seek to advance them in any interactions between American and Chinese businesses. Based on a review of how projects with Chinese involvement—as well as more broadly in emerging policy efforts to deliver more community benefits—this framework is used to identify best practices for ensuring maximum benefits accrue to the U.S. as a result of any such interactions. This includes examples of government and/or industry actions that convert interactions with Chinese companies into enhanced American manufacturing capabilities, greater access to IP, maximum domestic job creation and skill-building, accelerated diversification away from Chinese supply chains, and enhanced international market access and competitiveness.

5. Risk Assessment of Engagement in Key Technologies

5.1 Intellectual property

Intellectual property (IP) motivates many concerns in engagement with Chinese entities. China is on the U.S. Trade Representative's 2024 Special 301 Priority Watch List due to gaps in IP protection and enforcement. Various issues contribute to these concerns, including trade secret theft, bad faith trademark applications, and technology transfer pressures. Foreign companies operating in China face pressure to transfer sensitive technologies, particularly in sectors like electric vehicles, raising fears that these transfers will benefit Chinese competitors in the long run.

Joint ventures (JVs) and other partnership structures between U.S. or European companies and Chinese firms could present risks for IP theft and forced technology transfer. Chinese regulations, particularly in the new energy vehicle (NEV) sector, require foreign companies to demonstrate mastery of critical technologies, potentially forcing them to disclose proprietary software and know-how to their JV partners. Additionally, variable interest entity (VIE) structures in JVs pose regulatory risks, as these arrangements can allow Chinese firms to exert significant control over technology and operations without formal ownership.

Partnerships by U.S. firms with Chinese entities including technology supply and licensing have less clear potential for IP theft or transfer of sensitive U.S. technologies. In many cases, these arrangements can be seen as "reverse technology flow" with U.S. firms aiming to benefit from Chinese IP to bolster U.S. technological capabilities (see Box 1: Kore Power). Another concern raised is the reliance on Chinese IP, which could in theory hinder alternative technology development.

Box 1: Technology licensing in energy storage systems: KORE Power

KORE Power, a private U.S.-based energy storage company founded in 2019, focuses on energy storage systems (ESS) and produces proprietary NMC and LFP cells. KORE has entered into a multi-year strategic partnership with Nidec Industrial Solutions for the supply of battery cells and the development of turnkey energy storage systems for large-scale projects. Up until early 2025, it was planning a major expansion in Arizona, KOREPlex, which would manufacture both NMC and LFP batteries for home and transport applications. KORE's digital infrastructure at KOREPlex is supported by Honeywell Ventures, while Siemens Financial Services is a lead investor and strategic partner in the project.

KORE received a conditional loan commitment of $850 million from DOE LPO through the Advanced Technology Vehicles Manufacturing Loan Program (ATVM) for the KOREPlex facility. KORE and its consumers are expected to qualify for BIL Battery Materials Processing and Battery Manufacturing Grants, and IRA Section 45X Advanced Manufacturing Production Tax Credit. KORE has a supply agreement to source lithium-ion battery separators from ENTEK in Indiana. ENTEK received $200 million in 40C tax incentives for its Terre Haute manufacturing plant, and a conditional loan commitment from DOE LPO of up to $1.2 billion. There are no reported state tax credits or support. No formal reason was given for the abandonment of the Arizona KOREPlex, but some speculate it is because the DOE funds never arrived.

KORE Power has faced criticism over its connection to Chinese battery maker Do-Fluoride New Energy (DFNE), which owns a 14% stake in the company and will provide research and development, engineering capabilities and intellectual property. DFNE is a subsidiary of Do-Fluoride New Materials (DFD), whose chairman is a CCP official with a minority stake (3%). KORE Power and DOE defended DFD's involvement, with KORE Power noting that it will be "springboard that advances US-owned intellectual property" and plans to reduce its stake to below 5%.

5.2 Supply chain resilience and trade practices

The upstream supply chain for critical minerals and components poses challenges to U.S. firms, particularly in sectors like batteries and solar energy, where China controls a significant share of global refining and production. The concerns rest on the potential that partnerships with Chinese firms in downstream uses will rely upon upstream Chinese minerals and components, leaving American companies vulnerable to supply chain disruptions, price manipulation, and even export restrictions during trade tensions. Dependence on China within defense-related supply chains for energy-related components is also a source of concern: in 2024, China sanctioned and cut off battery shipments to U.S. drone-maker Skydio. Relatedly, solar panel manufacturers importing materials could be affected by trade regulations on materials from Xinjiang suspected of forced labor.

In contrast to battery manufacturing, the solar sector has attracted more Chinese investment, partnerships and projects. By one analysis, Chinese affiliated solar manufacturers in the U.S. are growing faster than other firms and will be able to supply 20 GW of modules per year by the end of 2025, half of the market. Non-Chinese affiliated firms complain that the Chinese firms have an unfair advantage through industrial subsidies.

5.3 Facility and community security

Concerns about Chinese ownership of land and employees on-site have heightened facility and community security issues, leading to legislation in some states targeting property ownership by citizens of "foreign adversaries" such as China. South Carolina, Texas and Virginia, among others, have passed bills to prohibit individuals or entities connected to these countries from purchasing property. This has fueled opposition in various communities, particularly when Chinese firms or joint ventures, such as Illuminate USA's solar panel factory in Ohio (a JV with LONGi), involve Chinese nationals on-site (see Box 2: Illuminate USA). Additionally, joint ventures and subsidiaries with Chinese involvement face scrutiny for potential security risks. These include proximity to U.S. military facilities (see Box 4: Gotion Inc) or general privacy or "economic security" concerns in the community (see Box 3: CATL).

Box 2: Joint-venture solar manufacturer: Illuminate USA

LONGi Green Energy Technology is a Chinese photovoltaics (PV) company established in 2000. The company operates a vertically integrated PV value chain, producing everything from wafers and solar cells to modules and ingots, and is the world's largest solar manufacturer and global shipper as of March 2024. LONGi has established production facilities overseas, including Malaysia, and Vietnam, with new plants under construction in India. It has also forged strategic partnerships globally, collaborating with companies like Nio for energy solutions in electric vehicle (EV) charging and Enercity to supply solar modules to the German market.

Illuminate USA is a joint venture between LONGi and U.S.-based power developer Invenergy. The JV established a solar panel manufacturing facility in Pataskala, Ohio, LONGi's first U.S. investment, and became the largest crystalline silicon solar panel factory in the U.S. at the time at 5 GW capacity. At a development cost of $600 million, the plant went into full operation in early 2024. Invenergy controls the land and majority ownership, and LONGi serves as the technology partner. Concerns have been raised about Chinese influence, particularly the role of Chinese workers sent to train U.S. employees on site as well as sourcing of polysilicon linked to forced labor allegations in Xinjiang. In response, LONGi is partnering with UK-based Ferroglobe to supply silicon to its U.S. ventures. Enforcement of UFLPA has increased in recent months, including detention of shipments by non-China firms such as QCells.

The Ohio facility can benefit from either the IRA 45X Advanced Manufacturing Production Tax Credit or 48C Advanced Energy Project Investment Tax Credit. In addition, solar panels produced by Illuminate USA qualify for the IRA Investment Tax Credit or Production Tax Credit. Ohio's private economic development corporation, JobsOhio, gave $4 million in incentives conditional on the creation of at least 850 jobs—and subject to a wage floor. The facility has benefits from 15-year tax abatement on property improvements.

5.4 Technological data security

Data collection associated with Chinese technology deployment in the U.S. has raised some security and privacy concerns. Chinese firms may be required to assist with government requests for intelligence, regardless of ownership. The most salient concern has related to hardware and software in connected vehicles, which include a large range of sensors and is the subject of regulations banning Chinese technology.

Joint ventures and subsidiaries involving Chinese firms in the U.S. create additional security risks, as American-based subsidiaries might share sensitive technology with Chinese parent companies. This concern has been amplified in sectors like energy storage, where cyber vulnerabilities could be exploited by malicious actors or governments. The 2024 NDAA bans the DOD from purchasing batteries from Chinese companies like CATL starting in October 2027. Microvast, which has a subsidiary in China, was selected to receive a $200 million grant from the DOE in 2022 but had the award was rescinded in May 2023 following political pressure over its Chinese connections. Despite the setback, Microvast continues to plan its U.S. investments without DOE funding.

Box 3: Technology licensing in advanced EV batteries: Ford-CATL partnership

Contemporary Amperex Technology (CATL) is the world's largest manufacturer of batteries in EVs (with 37% of global market share) and for energy storage applications. It was founded in 2011 by a team from ATL, a predecessor focused on consumer electronics. It produces an array of battery chemistries, and it is the global leader in cobalt-free lithium iron phosphate (LFP) batteries.

Domestically, it has JVs with major state-owned and private auto firms, and state-owned grid companies; strategic cooperations with major energy companies; and is part of a government-led alliance China All-Solid-State Battery Collaborative Innovation Platform with BYD, NIO, Gotion High-Tech, and other commercial and academic battery players focused on developing solid state EV batteries. Overseas, it has subsidiaries in U.S., France, Canada, Japan, and production bases in Germany and Hungary.

In 2023, Ford Motor announced a partnership with CATL in a new $3.5 billion Michigan plant to manufacture LFP batteries where CATL provides technology licensed to Ford but has no equity stake. Prior to this, Ford's main battery types are NMC from SK Innovation and imported LFP batteries in its SUV lines. The facility will manufacture LFP batteries, aimed at making Ford's electric vehicles more affordable. This project has raised concerns from several lawmakers, which has contributed to Ford scaling back the investment and number of jobs. Ford had originally considered a facility in Virginia, but state officials said that licensing CATL's LFP battery technology could compromise "economic security and Virginians' personal privacy."

Separately, CATL's battery storage project at a Marine Corps base was decommissioned at the insistence of Congress. DOD is banned under the 2024 NDAA from making battery purchases from CATL and a number of other Chinese companies. In January 2025, CATL was also listed as a "Chinese military company" by DOD. This exclusion and designation do not apply to commercial projects.

The Ford-CATL project may be eligible for BIL Battery Materials Processing and Battery Manufacturing Grants, as well as the IRA 30D Clean Vehicle and 45X Advanced Manufacturing Tax Credits. CATL restructured its shareholding of two of its top executives to mitigate CATL being designated as a Foreign Entity of Concern (FEOC), decreasing Chinese shareholding to 23.5% -- under the 25% threshold rule. In addition, CATL's partnership with Ford may not be considered "effective control" by allowing Ford independence of the operation of its facilities, per FEOC requirements. Following the passage of OBBBA, Ford executives reiterated their belief that the facility qualifies for 45X.

Michigan's government is heavily supporting the project, initially offering over $1.75 billion in subsidies, including property tax credits and grants for infrastructure development.

5.5 Dual-use applications

Indirect or direct links to China's military are a concern for engagement with Chinese firms, especially with growing scrutiny on China's "military-civil fusion" strategy. For particularly innovative firms, this could allow firms to modify existing technologies to meet both economic and military demands. In the U.S., concerns have been raised about Gotion Inc. which is a subsidiary of Gotion High-Tech that established a joint venture with China Energine, a subsidiary linked to the Chinese military (see Box 4: Gotion Inc). Similarly, Ford's licensing agreement with CATL for a Michigan battery plant has been criticized for involving CATL which is designated a "Chinese military company" for supplying goods to the People's Liberation Army. By contrast, direct dual-use concerns, where U.S. clean energy technology is used to enhance a foreign country's defense capabilities, are more muted. The Commerce Department's Bureau of Industry and Security leads the administration of dual-use export controls in coordination with multiple agencies. The task of identifying these technologies and how to ensure an efficient process is robustly debated. Nevertheless, export controls on clean energy technology where Chinese firms aim to expand into U.S. markets are rare.

Box 4: Foreign-owned battery supplier: Gotion Inc.

Gotion High-Tech, founded in 2006 as Hefei Gotion High-Tech Power Energy, focuses on producing lithium-ion (LFP) batteries for electric vehicles and energy storage systems (ESS). Gotion's American subsidiary, Gotion Inc., was established in 2014 with headquarters in California. The company's global operations include R&D centers in the U.S., Japan, Germany, Singapore, India and other locations. In 2023, Gotion held a 2.4% share of the global EV battery market and supplies batteries for passenger, commercial, and specialty vehicles. Volkswagen (China) invested €1.1 billion in Gotion in 2020, cementing a partnership for innovation and R&D. Volkswagen owns 30% of the company. Gotion is also part of a government-led alliance with CATL and others to develop solid-state EV batteries, with the goal of establishing a supply chain by 2030.

In the U.S., Gotion Inc. has been expanding its presence with battery plants in Michigan and Illinois. The Illinois plant will involve investments of $2 billion and develop battery cell, battery pack production, and energy storage system integration, employing estimated 2,600 jobs. The Michigan plant is a $2.3 billion investments and will produce cathode and anode materials supplying the Illinois plant, employing estimated 2,300 workers. Both facilities have faced criticism for Gotion's ties to CCP. Gotion Inc. is wholly owned by its parent company in China. Its parent has established a JV with China Energine, which is identified by the State Department as a Communist Chinese Military Company (CCMC) subsidiary. In addition, the Michigan facility will be 100 miles away from a National Guard camp.

Gotion Inc.'s U.S. battery facilities are not currently pursuing federal tax credits, according to its vice-president, but they note: "our financial and legal teams are in the process of reviewing and assessing the law, our main focus is how we can potentially pass these cost-saving credits onto our American customers." The Michigan Strategic Fund approved $175 million in state grants and tax exemptions for its Mecosta County LFP battery plant. Illinois's government provided a $536 million incentive package for its Manteno facility, including tax credits, capital funding and property tax abatement. A significant part of this came through Reimagining Energy and Vehicles (REV) Illinois, which requires at least 2,600 full-time jobs paid at 120% or greater of the average wage of similar jobs in the area.

6. Policy Recommendations

Based on prior historical examples and lessons and the ongoing sets of engagement with Chinese firms, this study makes policy recommendations with two key objectives in mind: (1) Minimizing risk and (2) Maximizing U.S. advantage. These are specifically designed with federally-supported clean energy manufacturing facilities in mind. Guiding examples are included with additional resources where applicable. In certain instances, recommendations for state and local governments are included, for which the federal government can play an important role in education and lesson sharing.

6.1 Minimizing risk

Policy Recommendation 1: Foreign Entity of Concern (FEOC) restrictions on federal incentives should be designed around flexibility and of federal dollars going to communities and bringing or developing advanced technology in the U.S.

Expanded FEOC restrictions apply to crucial federal programs, notably the clean vehicle tax credit (30D), clean electricity tax credits (45Y and 48E), and the advanced manufacturing tax credit (45X). Easy to evaluate ownership thresholds should be preferred over more complex formulations, though some discretion may be warranted for complex business structures. FEOC guidance of a 25% ownership threshold is in line with other federal frameworks. Given the lengthy process to generate the current guidance, regulations on FEOC following OBBBA should be streamlined to allow for flexibility to avoid setting back major automakers and other manufacturers which have been making investments and establishing technology pathways. For all credits, the fundamental principle driving revisions should be that federal dollars go toward communities and bringing or developing advanced technology in the U.S. Foreclosing all partnerships with Chinese firms may lead to slower technological advances for U.S. production facilities. However, these programs should be combined with strengthened requirements for IP localization. Finally, additional restrictions should only be based on assessment of technology-specific risks such as IP protection or national security. Batteries and EVs are shown to have a stronger nexus with some security concerns, while solar panels are less so. Material assistance cost ratio (MACR) requirements introduced in OBBBA can significantly impact the viability of manufacturing investments. Regulations could be designed to allow for greater flexibility, e.g., for projects that have already broke ground and through updated safe-harbor tables. Furthermore, for advanced manufacturing tax credits, consider the overall impact on manufacturing growth when adding new components to MACR requirements and allow for flexibility for manufacturing facilities producing more than one component.

Policy Recommendation 2: Require firms to diversify supplies to address specific scarcity and bottleneck risks where there is a high concentration, especially in upstream minerals and materials, with achievable phase-in timelines.

To respond to concerns of increased reliance on upstream materials and components in U.S. facilities with Chinese ownership or collaboration, additional requirements can be placed as a condition of receiving federal money. There is precedent for enhancing diversity in some regulations (e.g., 30D Clean Vehicle Tax Credit), though specific thresholds for content from allies and partner nations have been difficult to meet for many domestically-produced cars. On the other hand, requirements for high degrees of domestic content for all components, e.g., through MACR, may not be necessary. The key metric from the perspective of reducing supply chain bottleneck risks is diversity—including both domestic and a range of foreign suppliers. Additional analyses should be pursued into what level of concentration is deemed too risky at the component level. On the other hand, restrictions should not foreclose dominant global suppliers overnight. Building alternative suppliers—including processing capabilities domestically—can take years.

Guiding examples:

- Regulations and incentives like the Domestic Content Bonus under 45Y and 48E promote domestic sourcing across all value-added elements, while not foreclosing global trade. A stronger case can be made for ensuring diversification of upstream minerals and materials that are more geographically concentrated, while allowing for greater flexibility in the sourcing of downstream products.
- Solar firm LONGi, partner in Illuminate USA, is diversifying its silicon supply chains by partnering with UK-based producer Ferroglobe.

Policy Recommendation 3: Monitor and maintain an accurate list of energy products subject to UFLPA forced labor restrictions, and require abundant transparency of supply chains and cooperation with trade-related investigations in affiliated companies of supported U.S. facilities.

Due to the complexity of energy component supply chains, meeting the objective of eliminating the risk of forced labor in goods flowing into the U.S. requires additional resources and information. For facilities with Chinese partners, there should be a requirement of abundant transparency of all material imports to support these policy objectives. These concerns go hand in hand with trade authorities addressing concerns about unfairly priced imports from Chinese facilities. Federal support for projects should be made contingent on cooperation with all trade-related investigations into affiliated companies.

6.2 Maximizing U.S. advantage

Policy Recommendation 4: Require firms and investors involved in Chinese collaborations to establish technology management plans and protocols that specify ownership and protections of intellectual property (IP).

Most collaborations will involve intellectual property, hence clear protocols should be established at the outset that protect U.S. IP and govern the use of joint or newly created IP. These plans should be detailed and tailored to specific collaborations. Few companies disclose the details of these arrangements, leaving some ambiguity and potential of insufficient coverage for partners new to these types of collaborations. General principles of such agreements should include: transparency, risk mitigation, and local IP stays local. The U.S. partners should be able to access foreign IP and given preferential—ideally, exclusive—control over IP created through the collaboration. Furthermore, there should be clarity on recourse options, including within China, if disputes occur. The U.S. Patent and Trademark Office regularly publishes guides to intellectual property rights and enforcement in China.

Guiding examples:

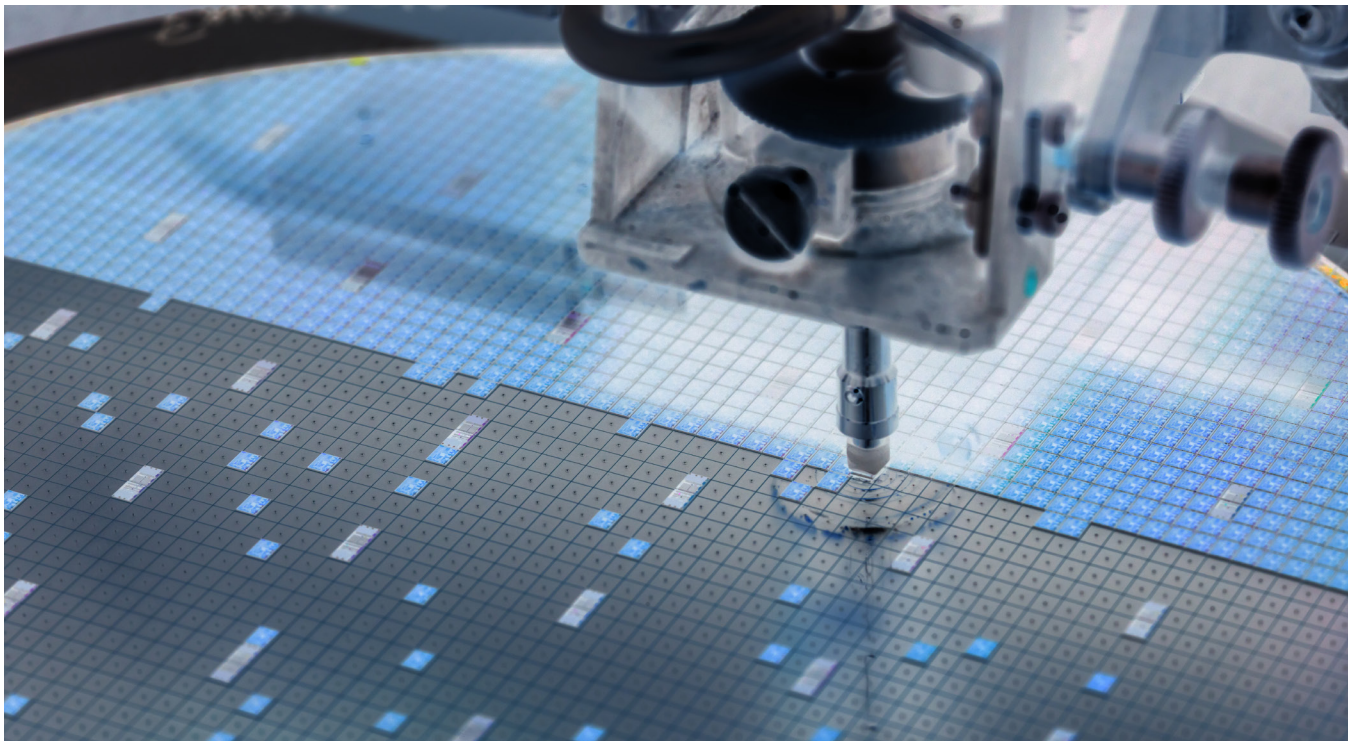
- The European Union is reportedly preparing a rule to require Chinese firms to share intellectual property with EU partners in order to qualify for state subsidies.
- U.S. federal research agencies require disclosure and enforce rules on participation in foreign talent programs. Similar safeguards can be put in place for federally-funded energy projects.
- The U.S.-China Clean Energy Research Center (CERC) created reference protocols for Technology Management Plans and examples from a variety of sectors to increase transparency and strengthen systems of risk protection. Surveys of U.S. industry participants were positive on the IP protections in place. A handbook to protections has been prepared by a set of experts involved in the center.

Policy Recommendation 5: Educate firms and local governments about technology licensing and technology partnership opportunities with Chinese firms that maintain domestic ownership of property and facilities, including if required by state law.

Given the potentially robust advantages to U.S. manufacturing capabilities of collaborations with Chinese firms, effective partnerships should be designed to minimize risks—of which foreign ownership is perhaps the largest. Technology licensing and strategic technology partnerships provide greater levels of U.S. control over facilities and operations, which may be attractive if state law forbids Chinese entity ownership or as a form of risk mitigation depending on local circumstances. Focusing on the core benefits of strategic technology partnerships—jettisoning riskier but less valuable forms of collaboration—helps advance domestic manufacturing, mitigate intellectual property risks, and maximize local economic benefits.

Guiding examples:

- The Ford-CATL partnership (see Box 3: CATL) in the BlueOval Battery Park in Michigan allows for the transfer of leading battery technology to a U.S. manufacturer which retains full ownership and control over the facility and its operations, in line with current FEOC guidance.
- Illuminate USA—a JV between U.S.-owned Invenergy and the Chinese firm LONGi—runs the first 5-GW scale crystalline silicon solar manufacturing facility in the U.S. Invenergy, as the majority owner, retains full ownership of the facility and its land through a wholly owned subsidiary.



Policy Recommendation 6: Establish best practices and educate state and local governments on designing effective incentives and risk management into agreements with Chinese firms.

Federal government manufacturing supports provide bonus incentives for meeting certain wage and apprenticeship requirements. Yet, state and local governments providing subsidies for factories often engage in more granular contract negotiations as a condition for receiving government dollars. Prior experience indicates two important approaches that could be adopted: participation-based and performance-based. Participation-based incentives have general requirements for employment, wages and/or benefits with more flexible criteria or simpler baseline objectives. Performance-based incentives include explicit quantitative requirements and targets to be reached for employment and investment. The DOE currently provides information on funding opportunities and technical assistance to state and local governments, a hub that could be expanded to include resources to maximize advantage for local communities.

Guiding examples:

- The DOE requires Community Benefits Plans (CBPs) as part of nearly all funding opportunities provided under BIL and IRA.
- Gotion Inc. received $125 million through Michigan's Critical Industry Program grant with the stipulation of creating at least 2,350 local jobs, and Gotion providing training & benefits to new employees.
- Hounen Solar received incentives from South Carolina's Coordinating Council for Economic Development directly tied to employment payroll taxes, requiring them to meet specific targets for health benefits and other stipulations on investment. On top of a $4,000 application fee and $500 annual renewal fee, Hounen Solar's benefits package had to include an agreement to pay at least 50% of an eligible employee's cost of health plan premiums. To ensure company performance, they entered into a Revitalization Agreement identifying a maximum reimbursement amount given targets are met within a five-year completion timeline.

Policy Recommendation 7: Assess the community benefits arising from projects involving Chinese firms and monitor for comparability and cost-effectiveness of government support.

Multiple state and local governments have included requirements on local job creation, retention, and training, emphasizing the large community benefits generated by solar manufacturing firms. Federal initiatives contain requirements or bonus incentives—albeit less granular—which favor high-quality jobs. The full stack of benefits arising from all supported projects should be assessed to ensure that those with Chinese partners are meeting or exceeding those without. In particular, when accounting for jobs created vs. local dollars, solar appears to be an attractive sector for budget-conscious local governments.

Guiding examples:

- In South Carolina, Hounen Solar stands to receive $34,930 per job over 10 years if it creates 200 jobs, with the credit coming from employees' withheld state income taxes. This includes a $32,430 job development credit and $2,500 per job from the Rural Infrastructure Fund, resulting in no additional cost to the employees or state beyond redirected tax revenue.
- In Ohio, Illuminate USA may receive $6,500 per job from grants and property tax abatements for creating 850 to 1,000 jobs at its solar panel factory.

7. Conclusion

As the United States navigates changes to clean energy public investment and industrial policy, the question of Chinese firm participation in federally supported projects presents both strategic opportunities and complex risks. This report underscores that while Chinese firms bring technological expertise and capital that can accelerate deployment and manufacturing scale-up, their involvement in U.S. projects—particularly those involving critical technologies and infrastructure—raises concerns around five key categories of risk: 1) intellectual property protection, 2) supply chain security, 3) facility ownership, 4) data privacy, and 5) potential military applications.

Existing federal statutes and regulatory frameworks have attempted to address these issues, particularly through FEOC restrictions, CIFIUS reviews, and trade enforcement. Yet critical gaps remain in oversight, implementation, and policy alignment across federal agencies. Moreover, as the structure of partnerships grows increasingly sophisticated, risk mitigation demands a more granular, technology- and transaction-specific approach.

This report concludes that a dual-track policy strategy is essential: one that minimizes security and economic risks through tighter transparency, sourcing requirements, and IP protections, while also maximizing U.S. advantage by enabling carefully structured collaborations that promote domestic ownership, job creation, and technological leadership.

Doing so will allow the U.S. to navigate the realities of global supply chains and technological interdependence without compromising its long-term energy security, economic competitiveness, or national interest.

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