

**OFFICE *of the* UNITED STATES TRADE REPRESENTATIVE
EXECUTIVE OFFICE OF THE PRESIDENT**

**FINDINGS OF THE INVESTIGATION INTO
CHINA'S ACTS, POLICIES, AND PRACTICES
RELATED TO TECHNOLOGY TRANSFER,
INTELLECTUAL PROPERTY, AND INNOVATION
UNDER SECTION 301 OF THE TRADE ACT OF 1974**



March 22, 2018

Abbreviations and Acronyms

Acronym	Definition
3PLA	People’s Liberation Army, Third Department
4WD	four-wheel drive
AAFA	American Apparel & Footwear Association
ABA	American Bar Association
ABC	Agriculture Bank of China
ABPIA	American Bridal & Prom Industry Association
ACC	American Chemistry Council
AEI	American Enterprise Institute
AGIC	Asia-Germany Industrial Promotion Capital
AI	artificial intelligence
AmCham	American Chamber of Commerce Shanghai
AML	Anti-Monopoly Law
AMSC	American Superconductor Corporation
APEC	Asia-Pacific Economic Cooperation
APT	advanced persistent threat
AQSIQ	Administration of Quality Supervision, Inspection and Quarantine
ATI	Allegheny Technologies, Inc
AVIC	Aviation Industry Corporation of China
AVICEM	ACIF Electromechanical Systems Co., Ltd
AWD	all-wheel drive
BCM	Bank of Communications
BEA	U.S. Bureau of Economic Analysis
BGI	Shenzhen Beijing Genomics Institute
BIO	Biotechnology Innovation Organization
BIS	Bureau of Industry and Security
BoC	Bank of China
BRI	Belt and Road Initiative
BRIC	Brazil, Russia, India, and China
C&C	command-and-control
CAAC	Civil Aviation Administration of China
CAIGA	China Aviation Industry General Aircraft Co.
CAST	China Association of Science and Technology
CCBC	China Construction Bank Corporation
CCC	China Compulsory Certification
CCCME	China Chamber of Commerce for Import & Export of Machinery and Electronic Products
CCOIC	China Chamber of International Commerce
CCP	Chinese Communist Party
CCXR	China Chengxin Securities Rating Company
CDB	China Development Bank
CFIUS	Committee on Foreign Investment in the United States
CG	Complete Genomics
CGCC	China General Chamber of Commerce
CIC	China Investment Corporation
CIGS	copper indium gallium selenide
CIPL	China Intellectual Property Law Society

CJV	contractual joint venture
CMG	Continental Motors Group Limited
CMOS	complementary metal-oxide semiconductor
CNOOC	China National Offshore Oil Corporation
CNY	Chinese yuan
COMAC	Commercial Aircraft Corporation of China, Ltd
CompTIA	Computing Technology Industry Association
CPPCC	Chinese People’s Political Consultative Conference
CSI	Coalition of Services Industries
CSIS	Center for Strategic and International Studies
CSP	cloud service providers
CTA	Consumer Technology Association
DHH	DHH Washington Law Office
DHS	U.S. Department of Homeland Security
DOJ	U.S. Department of Justice
DRC	Development and Reform Commission
EJV	equity joint venture
EXIM	China Export-Import Bank
FADEC	full authority digital engine control
FAW	First Automotive Workers
FDI	foreign direct investment
FIE	foreign-invested entities
FYP	Five-Year Plan for National Economic and Social Development
GA	general aviation
GAC	General Administration of Customs
GDP	gross domestic product
GMO	genetically modified organism
HNA	Hainan Airlines
IaaS	infrastructure as a service
IAM	International Association of Machinists and Aerospace Workers
IATA	International Air Transport Association
IC	integrated circuit
ICBC	Industrial and Commercial Bank of China
ICT	information and communications technology
ICTSD	International Center for Trade and Sustainable Development
IDAR	introduce, digest, absorb, and re-innovate
IDC	internet data center
IDDS	innovation-driven development strategy
IGBT	insulated-gate bipolar transistors
IGCC	University of California Institute on Global Conflict and Cooperation
IMF	International Monetary Fund
iML	Integrated Memory Logic Limited
IP	intellectual property
IPIRA	Intellectual Property and Industry Research Alliances
ISS	Imaging Solutions and Services
ISSI	Integrated Silicon Solutions, Inc.
IT	information technology
ITAR	International Traffic in Arms Regulations
ITI	Information Technology Industry Council

ITIF	Information Technology & Innovation Foundation
JCCT	U.S.-China Joint Commission on Commerce and Trade
JV	joint venture
M&A	merger and acquisitions
MCF	military-civil fusion
MCM	multi-chip module
MEMA	Motor & Equipment Manufacturers Association
MEMS	micro-electromechanical systems
MERICs	Mercator Institute for China Studies
METI	Ministry of Economy, Trade, and Industry
MIIT	Ministry of Industry and Information Technology
MLP	National Medium- and Long-Term Plan for the Development of Science and Technology
MLPS	Multi-level Protection Scheme
MLR	Ministry of Land and Resources of the People's Republic of China
MNE	multinational enterprise
MOA	Ministry of Agriculture of the People's Republic of China
MOF	Ministry of Finance of the People's Republic of China
MOFCOM	Ministry of Commerce of the People's Republic of China
MOST	Ministry of Science and Technology of the People's Republic of China
MPS	managed print services
MRO	maintenance, repair, and overhaul
MSS	China's Ministry of State Security
MW	megawatt
NAM	National Association of Manufacturers
NBC	National Bureau of Statistics of the People's Republic of China
NDRC	National Development and Reform Commission
NEA	National Energy Administration
NEV	new-energy vehicle
NFTC	National Foreign Trade Council
NHI	Northern Heavy Industries Group
NPC	National People's Congress (China)
NTE	National Trade Estimate
OCTG	oil country tubular goods
ODI	overseas direct investment
OECD	Organization for Economic Cooperation and Development
OFDI	outbound foreign direct investment
PaaS	computer platform as a service
PBOC	People's Bank of China
PERC	Passivated Emitter Rear Contact
PLA	China's People's Liberation Army
PMA	parts manufacturing and authorization
PMDD	Permanent-Magnet Direct Drive
PPD-28	Presidential Policy Directive 28
PPP	private-public partnership
PRC	People's Republic of China
PWM	pulse width modulation
R&D	research and development
RMB	renminbi (official currency of China)
S&ED	U.S.-China Strategic & Economic Dialogue

S&T	science and technology
SaaS	computer software as a service
SAFE	State Administration of Foreign Exchange
SAIC	State Administration of Industry Commerce
SASAC	State-owned Assets Supervision and Administration Commission
SASTIND	State Administration for Science, Technology, and Industry for National Defense
SAT	State Administration of Taxes
SEI	strategic and emerging industries
SIA	Semiconductor Industry Association
SIGINT	Signals intelligence
SIPO	State Intellectual Property Office
SMIC	Semiconductor Manufacturing International Corporation
SNPTC	State Nuclear Power Technology Corporation
SOE	state-owned enterprise
SSLP	seamless standard line pipes
TIA	Telecommunications Industry Association
TIER	<i>Regulations of the PRC on Administration of Import and Export Technologies</i>
TRB	technical reconnaissance bureau
TRIPS	Trade-Related Aspects of Intellectual Property Rights
UAV	unmanned aerial vehicle
UNCTAD	United Nations Conference on Trade and Development
USC	United States Constitution
USCBC	U.S.-China Business Council
USCIB	U.S. Council for International Business
USD	U.S. dollars
USITC	U.S. International Trade Commission
USPTO	U.S. Patent and Trademark Office
USW	United Steel Workers
UT	United Turbine
VAT	value-added tax
VC	venture capital
WFOE	wholly foreign-owned entity
WIPO	UN's World Intellectual Property Organization
WNA	World Nuclear Association
ZGC	Zhongguancun

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I. Overview

A. Core Elements of Section 301

This investigation has been brought under Section 301 of the Trade Act of 1974, as amended (the Trade Act).¹ Section 301 is a key enforcement tool that may be used to address a wide variety of unfair acts, policies, and practices of U.S. trading partners. Section 301 sets out three categories of acts, policies, or practices of a foreign country that are potentially actionable: (i) trade agreement violations; (ii) acts, policies or practices that are unjustifiable (defined as those that are inconsistent with U.S. international legal rights) and that burden or restrict U.S. Commerce; and (iii) acts, policies or practices that are unreasonable or discriminatory and that burden or restrict U.S. Commerce.² The third category of conduct is most relevant to this investigation.

Section 301 defines “discriminatory” to “include, when appropriate, any act, policy, and practice which denies national or most-favored nation treatment to United States goods, service, or investment.”³ An “unreasonable” act, policy, or practice is one that “while not necessarily in violation of, or inconsistent with, the international legal rights of the United States is otherwise unfair and inequitable.”⁴ The statute further provides that in determining if a foreign country’s practices are unreasonable, reciprocal opportunities to those denied U.S. firms “shall be taken into account, to the extent appropriate.”⁵

If the USTR determines that the Section 301 investigation “involves a trade agreement,” and if that trade agreement includes formal dispute settlement procedures, USTR may pursue the investigation through consultations and dispute settlement under the trade agreement. Otherwise, USTR will conduct the investigation without recourse to formal dispute settlement.

Moreover, if the USTR determines that the act, policy, or practice falls within any of the three categories of actionable conduct under Section 301, the USTR must also determine what action, if any, to take.⁶ For example, if the USTR determines that an act, policy or practice is unreasonable or discriminatory and that it burdens or restricts U.S. commerce,

The Trade Representative shall take all appropriate and feasible action authorized under [Section 301(c)], subject to the specific direction, if any, of the President regarding any such action, and all other appropriate and feasible action within the power of the President that the President may

¹ Unless otherwise specified, “Section 301” refers generally to Chapter 1 of Title III of the Trade Act of 1974 (codified as amended in 19 U.S.C. §§ 2411-2417). Furthermore, for ease of reference, full citations are used throughout this report.

² Trade Act of 1974, 19 U.S.C. § 2411(a)-(b).

³ 19 U.S.C. § 2411(d)(5). Section III describes discriminatory acts, practices, and policies of the Chinese government.

⁴ 19 U.S.C. § 2411(d)(3)(A).

⁵ 19 U.S.C. § 2411(d)(3)(D).

⁶ For example, in 2014, USTR determined that action against Ukraine was not appropriate due to the political situation. *See Notice of Determination in Section 301 Investigation of Ukraine*, 79 Fed. Reg. 14,326-27 (Mar. 13, 2014).

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direct the Trade Representative to take under this subsection, to obtain the elimination of that act, policy, or practice.⁷

Actions specifically authorized under Section 301(c) include: (i) suspending, withdrawing or preventing the application of benefits of trade agreement concessions; (ii) imposing duties, fees, or other import restrictions on the goods or services of the foreign country for such time as deemed appropriate; (iii) withdrawing or suspending preferential duty treatment under a preference program; (iv) entering into binding agreements that commit the foreign country to eliminate or phase out the offending conduct or to provide compensatory trade benefits; or (v) restricting or denying the issuance of service sector authorizations, which are federal permits or other authorizations needed to supply services in some sectors in the United States.⁸ In addition to these specifically enumerated actions, the USTR may take any actions that are “within the President’s power with respect to trade in goods or services, or with respect to any other area of pertinent relations with the foreign country.”⁹

B. Background to the Investigation

On August 14, 2017, the President issued a Memorandum to the Trade Representative stating *inter alia* that:

China has implemented laws, policies, and practices and has taken actions related to intellectual property, innovation, and technology that may encourage or require the transfer of American technology and intellectual property to enterprises in China or that may otherwise negatively affect American economic interests. These laws, policies, practices, and actions may inhibit United States exports, deprive United States citizens of fair remuneration for their innovations, divert American jobs to workers in China, contribute to our trade deficit with China, and otherwise undermine American manufacturing, services, and innovation.¹⁰

The President instructed USTR to determine under Section 301 whether to investigate China’s law, policies, practices, or actions that may be unreasonable or discriminatory and that may be harming American intellectual property rights, innovation, or technology development.¹¹

Concerns about a wide range of unfair practices of the Chinese government (and the Chinese Communist Party (CCP)) related to technology transfer, intellectual property, and innovation are longstanding. USTR has pursued these issues multilaterally, for example, through the WTO dispute settlement process and in WTO committees, and bilaterally through the annual Special 301 review. These issues also have been raised in bilateral dialogues with China, including the U.S.-China Joint Commission on Commerce and Trade (JCCT) and U.S.-China Strategic & Economic Dialogue (S&ED), to attempt to address some of the U.S. concerns.

⁷ 19 U.S.C. § 2411(b).

⁸ In cases in which USTR determines that import restrictions are the appropriate action, preference must be given to the imposition of duties over other forms of action. 19 U.S.C. §§ 2411(c).

⁹ 19 U.S.C. § 2411(b)(2).

¹⁰ See *Addressing China's Laws, Policies, Practices, and Actions Related to Intellectual Property, Innovation, and Technology*, 82 Fed. Reg. 39,007 (Aug. 17, 2017).

¹¹ *Id.*

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1. Initiation of the Investigation

USTR initiated this investigation on August 18, 2017 after consultation with the interagency Section 301 committee and private sector advisory committees.¹² On that same date, USTR also requested consultations with the Government of China.¹³ China's Minister of Commerce responded to this letter on August 28, opposing the initiation of a Section 301 investigation.¹⁴

The *Federal Register Notice* described the focus of the investigation as follows:

First, the Chinese government reportedly uses a variety of tools, including opaque and discretionary administrative approval processes, joint venture requirements, foreign equity limitations, procurements, and other mechanisms to regulate or intervene in U.S. companies' operations in China, in order to require or pressure the transfer of technologies and intellectual property to Chinese companies. Moreover, many U.S. companies report facing vague and unwritten rules, as well as local rules that diverge from national ones, which are applied in a selective and non-transparent manner by Chinese government officials to pressure technology transfer.

Second, the Chinese government's acts, policies and practices reportedly deprive U.S. companies of the ability to set market-based terms in licensing and other technology-related negotiations with Chinese companies and undermine U.S. companies' control over their technology in China. For example, the *Regulations on Technology Import and Export Administration* mandate particular terms for indemnities and ownership of technology improvements for imported technology, and other measures also impose non-market terms in licensing and technology contracts.

Third, the Chinese government reportedly directs and/or unfairly facilitates the systematic investment in, and/or acquisition of, U.S. companies and assets by Chinese companies to obtain cutting-edge technologies and intellectual property and generate large-scale technology transfer in industries deemed important by Chinese government industrial plans.

Fourth, the investigation will consider whether the Chinese government is conducting or supporting unauthorized intrusions into U.S. commercial computer networks or cyber-enabled theft of intellectual property, trade secrets, or confidential business information, and whether this conduct harms U.S. companies or provides competitive advantages to Chinese companies or commercial sectors.

¹² See *Initiation of Section 301 Investigation; Hearing; and Request for Public Comments: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation*, 82 Fed. Reg. 40,213-14 (Aug. 24, 2017) (Appendix A).

¹³ See Appendix A.

¹⁴ See Letter from Minister of Commerce Zhong Shan to Ambassador Robert Lighthizer (Aug. 28, 2017) (on file with author).

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In addition to these four types of conduct, interested parties could submit for consideration information on other acts, policies and practices of China relating to technology transfer, intellectual property, and innovation for potential inclusion in this investigation or to be addressed through other applicable mechanisms.¹⁵

The terms “technology” and “technology transfer” are key concepts in this investigation. They are defined in Box I.1.

Box I.1: Technology and Technology Transfer Defined

Technology is defined broadly in this investigation to include knowledge and information needed to produce and deliver goods and services, as well as other methods and processes used to solve practical, technical or scientific problems. In addition to information protected by patents, copyrights, trademarks, trade secrets, and other types of intellectual property (IP) protections, the term also includes “know-how”, such as production processes, management techniques, expertise, and the knowledge of personnel.

Technology and innovation are critical factors in maintaining U.S. competitiveness in the global economy. Among all major economies, the United States has the highest concentration of knowledge- and technology-intensive industries as a share of total economic activity. And in high-tech manufacturing, the United States leads the world with a global share of production of 29 percent, followed by China at 27 percent.

Technology transfers made on voluntary and mutually-agreed terms, and without government interference or distortion, are critical to the U.S. economy. In fact, U.S. companies are global leaders in the transfer of technology through legal mechanisms such as trade in high-tech goods and services; the licensing of technology to companies and persons abroad; and foreign direct investment (FDI).

Sources: OECD, *Glossary of Statistical Terms*; Keith E. Maskus, UNCTAD-ICTSD, *Encouraging International Technology Transfer* 9 (2004); U.S. Dept. of Commerce, *Intellectual Property and the U.S. Economy* 1 (2012); National Science Board, *Science & Engineering Indicators* 4, 4-17 (2016); OECD, *Main Science and Technology Indicators: Technology Balance of Payments: Receipts (Current Prices)*, 2016; UNCTAD, *World Investment Report*, 2017, 14.

2. China’s Bilateral Commitments to End its Technology Transfer Regime and to Refrain from State-Sponsored Cyber Intrusions and Theft

In the bilateral relationship, China repeatedly has committed to eliminate aspects of its technology transfer regime. On at least eight occasions since 2010, the Chinese government has committed not to use technology transfer as a condition for market access and to permit technology transfer decisions to be negotiated independently by businesses. China has further committed not to pressure the disclosure of trade secrets in regulatory or administrative

¹⁵ See Appendix A.

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proceedings. The evidence adduced in this investigation establishes that China's technology transfer regime continues, notwithstanding repeated bilateral commitments and government statements, as summarized in Table I.1, below, and discussed in the remainder of this report.

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Table I.1 China’s Bilateral Commitments Relating to Technology Transfer, 2010 - 2016

Year	Mechanism	Commitment
2010	S&ED	China reaffirmed that the terms and conditions of technology transfer, production processes, and other proprietary information will be determined by individual enterprises.
2011	JCCT	China confirmed that it does not and will not maintain measures that mandate the transfer of technology in the New Energy Vehicles Sector. China further clarified that “mastery of core technology” does not require technology transfer for NEVs.
2012	S&ED	China reaffirmed its commitment that technology transfer is to be decided by firms independently and not to be used by the Chinese government as a pre-condition for market access.
2012	Xi Visit Commitment	China reiterated that technology transfer and technological cooperation shall be decided by businesses independently and will not be used by the Chinese government as a pre-condition for market access.
2012	JCCT	China reaffirmed that technology transfer and technology cooperation are the autonomous decisions of enterprises. China committed that it would not make technology transfer a precondition for market access.
2014	JCCT	China committed that enterprises are free to base technology transfer decisions on business and market considerations, and are free to independently negotiate and decide whether and under what circumstances to assign or license intellectual property rights to affiliated or unaffiliated enterprises.
2014	JCCT	China confirmed that trade secrets submitted to the government in administrative or regulatory proceedings are to be protected from improper disclosure to the public and only disclosed to government officials in connection with their official duties in accordance with law.
2015	Xi Visit Commitment	China committed not to advance generally applicable policies or practices that require the transfer of intellectual property rights or technology as a condition of doing business in the Chinese market.
2015	Xi Visit Commitment	China committed to refrain from conducting or knowingly supporting cyber-enabled theft of intellectual property, including trade secrets or other confidential business information, with the intent of providing competitive advantages to companies or commercial sectors.
2016	Xi Visit Commitment	China committed not to require the transfer of intellectual property rights or technology as a condition of doing business.

Source: USTR, CATALOGUE OF JCCT AND S&ED COMMITMENTS (2016); 2016 USTR REP. TO CONG. ON CHINA’S WTO COMPLIANCE 7.

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3. Input from the Public

USTR provided the public and interested persons with opportunities to present their views and perspectives on the issues highlighted in the *Federal Register Notice*, including through a public hearing on October 10, 2017.¹⁶ Witnesses with varied interests and perspectives testified and responded to questions from the interagency Section 301 committee including representatives of U.S. companies and workers, trade and professional associations, and think tanks, as well as law firms and representatives of trade and professional associations headquartered in China.¹⁷ Interested persons also filed approximately 70 written submissions in the public docket for this investigation.¹⁸

As U.S. companies have stated for more than a decade,¹⁹ they fear that they will face retaliation or the loss of business opportunities if they come forward to complain about China's unfair trade practices. Concerns about Chinese retaliation arose in this investigation as well. Multiple submissions noted the great reluctance of U.S. companies to share information on China's technology transfer regime, given the importance of the China market to their businesses and the fact that Chinese government officials are "not shy about retaliating against critics."²⁰

For example, a representative of the Commission on the Theft of American Intellectual Property testified at the hearing: "American companies are intimidated and reticent over the issue, especially in China. There they risk punishment by a powerful and opaque Chinese regulatory system."²¹ In addition, according to the U.S. China Business Council, their member companies do not presently have "reliable channel[s] to report abuses and to appeal adverse decisions...without fear of retaliation."²² Similarly, a representative of SolarWorld stated that "many other companies face the same issues of cyberhacking and technology theft that [it] has faced, but are unwilling to come forward publicly due to fear of lost sales or retaliation by China."²³

¹⁶ The transcript of the hearing is available on the Federal eRulemaking Portal, <https://www.regulations.gov> and on USTR's website, <https://ustr.gov>.

¹⁷ The following individuals participated in the public hearing: Richard Ellings, Commission on the Theft of American Intellectual Property; Stephen Ezell, Information Technology and Innovation Foundation; Erin Ennis, US-China Business Council; Owen Herrstadt, International Association of Machinists and Aerospace Workers; Juergen Stein, SolarWorld; Daniel Patrick McGahn, American Superconductor Corporation; William Mansfield, ABRO Industries; Scott Partridge, American Bar Association Intellectual Property Law Section; Scott Kennedy, Center for Strategic and International Studies; Jin Haijun, China Intellectual Property Law Society; Chen Zhou and Liu Chao, China Chamber of International Commerce; XU Chen, China General Chamber of Commerce; John Tang, DHH Washington Law Office; Wang Guiqing, China Chamber of Commerce for Import and Export of Machinery and Export Products. See Appendix B.

¹⁸ See Appendix C for a summary of the public submissions. The submissions can be viewed on the Federal eRulemaking Portal, <https://www.regulations.gov>.

¹⁹ U.S. CHINA BUSINESS COUNCIL [*hereinafter* "USCBC"], *Submission, Section 301 Hearing 4* (Sept. 28, 2017); see also SOLARWORLD, *Submission, Section 301 Hearing 2* (Oct. 20, 2017).

²⁰ James Lewis, CENTER FOR STRATEGIC & INT'L. STUDIES [*hereinafter* "CSIS"], *Submission, Section 301 Hearing 6* (Sept. 27, 2017); see also Lee Branstetter, *Submission, Section 301 Hearing 4* (Sept. 28, 2017); Stephen Zirschky, *Submission, Section 301 Hearing 2* (Sept. 28, 2017).

²¹ USTR, *Hearing Transcript, Section 301 Hearing 13* (Oct. 10, 2017); see also COMM'N. ON THE THEFT OF AM. IP [*hereinafter* "IP Commission"], *Submission, Section 301 Hearing 8* (Sept. 28, 2017).

²² USCBC, *Submission, Section 301 Hearing 4* (Sept. 28, 2017).

²³ SOLARWORLD, *Submission, Section 301 Hearing 2* (Oct. 20, 2017).

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Because USTR self-initiated this action, no particular company or group of companies was required to step forward and file a Section 301 petition to initiate this investigation. Moreover, in making this determination, USTR and the interagency Section 301 committee took into account not just investigation submissions and testimony but also public reports, scholarly articles, and other reliable information. In addition, business confidential information has been provided and considered as part of the record in this investigation, so that companies could share sensitive information without the threat of business loss or retaliation.

C. China's Technology Drive

Official publications of the Chinese government and the CCP set out China's ambitious technology-related industrial policies. These policies are driven in large part by China's goals of dominating its domestic market and becoming a global leader in a wide range of technologies, especially advanced technologies. The industrial policies reflect a top-down, state-directed approach to technology development and are founded on concepts such as "indigenous innovation" and "re-innovation" of foreign technologies, among others. The Chinese government regards technology development as integral to its economic development and seeks to attain domestic dominance and global leadership in a wide range of technologies for economic and national security reasons.²⁴ China accordingly seeks to reduce its dependence on technologies from other countries and move up the value chain, advancing from low-cost manufacturing to become a "global innovation power in science and technology."²⁵ In pursuit of this overarching objective, China has issued a large number of industrial policies, including more than 100 five-year plans, science and technology development plans, and sectoral plans over the last decade.²⁶ Some of the most prominent industrial policies include the *National Medium- and Long-Term Science and Technology Development Plan Outline (2006-2020) (MLP)*,²⁷ the *State Council Decision on Accelerating and Cultivating the Development of Strategic Emerging Industries (SEI Decision)*²⁸, and, more recently, the *Notice on Issuing "Made in China 2025" (Made in China 2025 Notice)*.²⁹

The *MLP*, issued in 2005 and covering the period 2006 to 2020, is the seminal document articulating China's long-term technology development strategy. The *MLP* recognizes the country's "relatively weak indigenous innovation capacity," its "weak core competitiveness of enterprises," and the fact that the country's high-technology industries "lag" those of more developed nations."³⁰

²⁴ See James Lewis, *Submission, Section 301 Hearing 1* (Sept. 2017).

²⁵ *CCP State Council Releases the "National Innovation-Driven Development Strategy Guidelines* §2(3) [Chinese], XINHUA NEWS, May 19, 2016, http://news.xinhuanet.com/politics/2016-05/19/c_1118898033.htm.; see also TAI MING CHEUNG ET AL., U.S.-CHINA ECON. & SEC. REV. COMM'N, PLANNING FOR INNOVATION: UNDERSTANDING CHINA'S PLANS FOR TECHNOLOGICAL, ENERGY, INDUSTRIAL AND DEFENSE DEVELOPMENT [*hereinafter* "IGCC REPORT"] xiii (2016).

²⁶ IGCC REPORT at 30.

²⁷ *Notice on Issuing the National Medium- and Long-Term Science and Technology Development Plan Outline (2006-2020)* [*hereinafter* "MLP"] (State Council, Guo Fa [2005] No. 44, issued Dec. 26, 2005).

²⁸ *Decision on Accelerating the Cultivation and Development of Strategic Emerging Industries* (State Council, Guo Fa [2010] No. 32, issued Oct. 10, 2010).

²⁹ *Notice on Issuing "Made in China 2025"* (State Council, Guo Fa [2015] No. 28, issued May 8, 2015).

³⁰ *MLP* §1.

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As its focus, the *MLP* identifies 11 key sectors, and 68 priority areas within these sectors, for technology development.³¹ It also designates eight fields of “frontier technology,”³² within which 27 “breakthrough technologies” will be pursued, and highlights four major scientific research programs.³³ The *MLP* also establishes the cross-cutting goal of reducing the rate of dependence on foreign technologies in the identified sectors to below 30% by the year 2020.³⁴

The *MLP* strategy for securing sought-after technology development includes several key elements, which continue to have a negative impact on U.S. and other foreign companies:

- A top-down national strategy, in which implementation requires the mobilization and participation of all sectors of society³⁵ and the integration of civil and military resources;³⁶
- Prioritization of certain industries and technologies for development,³⁷ particularly those that can advance “sustainable development,” “core competitiveness,” “public service,” and “national security” objectives.³⁸
- Leveraging state resources and regulatory systems;³⁹
- Import substitution to be achieved through “indigenous innovation”⁴⁰ and re-innovation based on assimilation and absorption of foreign technologies;⁴¹ and
- Promoting Chinese enterprises to become dominant in the domestic market⁴² and internationally competitive enterprises⁴³ in key industries.

The *MLP* set in motion a web of policies and practices intended to drive innovation and re-innovation. For example, Section 8(2) of the *MLP* calls for “enhancing the absorption, digestion,

³¹ The sectors include energy, water and mineral resources, environment, agriculture, manufacturing, transportation, information and services, population and health, urbanization, public security and national defense.

³² The areas include biotech, information technology, advanced materials, advanced manufacturing, advanced energy technology, marine technology, laser technology and aerospace technology.

³³ The fields include protein science, nanotechnology, quantum physics and developmental and reproductive science.

³⁴ *MLP* § 2(2) ¶ 3, *Guiding Directives, Development Targets, and Comprehensive Arrangements*.

³⁵ *MLP* § 2(1). (“In sum, we must make enhancing indigenous innovation capacity our national strategy, and implement it in all aspects of modernization construction and in every industry, sector and region.”). §8(5) also guides “all types of financial institutions and private funds to participate in science and technology development.”

³⁶ *MLP* § 8(7).

³⁷ *MLP* § 3 sets out the “Key Sectors and their Priority Issues.”

³⁸ *MLP* § 3, *Preamble*.

³⁹ *MLP* § 9.

⁴⁰ *MLP* § 2(1).

⁴¹ *MLP* §§ 2(1), 8(2). The term “introduce” used throughout *MLP* refers to introduction of technology through foreign investment. This is made more explicit in the measures defining and discussing IDAR below.

⁴² *MLP* § 2(2) states dependence on foreign technology should be reduced to only 30% by 2020.

⁴³ See IGCC REPORT at 157. See also *MLP* § 2.

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and re-innovation of introduced technology.”⁴⁴ Following the issuance of the *MLP*, China detailed these policies in the *Several Supporting Policies for Implementing the “National Medium- and Long-Term Science and Technology Development Plan Outline (2006-2020)” (MLP Supporting Policies)*⁴⁵ and the *Opinions on Encouraging Technology Introduction and Innovation and Promoting the Transformation of the Growth Mode in Foreign Trade (IDAR Opinions)*,⁴⁶ which articulate the concept of **I**nroducing,⁴⁷ **D**igesting,⁴⁸ **A**bsorbing,⁴⁹ and **R**e-innovating⁵⁰ foreign intellectual property and technology (IDAR). The IDAR approach involves four steps, each of which hinges on close collaboration between the Chinese government and Chinese industry to take full advantage of foreign technologies:

- **Introduce:** Chinese companies should target and acquire foreign technology. Methods of “introducing” foreign technology that are specifically referenced include: technology transfer agreements, inbound investment, technology imports, establishing foreign R&D centers, outbound investment, and the collection of market intelligence by state entities for the benefit of Chinese companies.⁵¹ Technology to be “introduced” from overseas includes “major equipment that cannot yet be supplied domestically”, as well as “advanced design and manufacturing technology”;⁵² conversely, the government discourages imports of technologies for which China is already deemed to “possess domestic R&D capabilities.”⁵³
- **Digest:** Following the acquisition of foreign technology, the Chinese government should collaborate with China’s domestic industry to collect, analyze, and disseminate the information and technology that has been acquired.⁵⁴
- **Absorb:** The Chinese government and China’s domestic industry should collaborate to develop products using the technology that has been acquired. The Chinese government should provide financial assistance to develop products using technology obtained through IDAR, including foreign trade development funds, government procurement, and fiscal incentives.⁵⁵ To absorb foreign technologies, authorities have established engineering research centers, enterprise-based technology centers, state laboratories, national technology transfer centers, and high-technology service centers.⁵⁶

⁴⁴ *MLP* §§ 2(1), 8(2).

⁴⁵ *Several Supporting Policies for Implementing the “National Medium- and Long-Term Science and Technology Development Plan Outline (2006-2020)”* (State Council, Guo Fa [2006] No. 6, issued Feb. 7, 2006).

⁴⁶ *Several Opinions on Encouraging Technology Introduction and Innovation and Promoting the Transformation of the Growth Mode in Foreign Trade* (MOFCOM, NDRC, MOST, MOF, GAC, SAT, SIPO, SAFE, Shang Fu Mao Fa [2006] No. 13, issued July 14, 2006).

⁴⁷ English translation of Chinese term *yinjin*.

⁴⁸ English translation of Chinese term *xiaohua*.

⁴⁹ English translation of Chinese term *xishou*.

⁵⁰ English translation of Chinese term *zai chuangxin*.

⁵¹ *IDAR Opinions* § 7-9, 11-12. See also IGCC REPORT at 118-119.

⁵² *MLP Supporting Policies* § 28, 29.

⁵³ *MLP Supporting Policies* § 29.

⁵⁴ *IDAR Opinions* § 7; *MLP Supporting Policies* § 31.

⁵⁵ *IDAR Opinions* § 15, 18; *MLP Supporting Policies* § 30, 32.

⁵⁶ IGCC REPORT at 118.

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- Re-innovate: At this stage, Chinese companies should “re-innovate” and improve upon the foreign technology. The ultimate objective is to develop new, home-grown products that are competitive internationally, so as to “allow enterprises to possess more indigenous intellectual property for core products and core technologies.”⁵⁷

The IDAR approach embraces a strong role for the Chinese government in guiding and assisting Chinese industry in technology development and has had profound implications, in particular, for the way in which China has sought to introduce foreign technologies into China over the last decade. It has spurred Chinese government ministries and government officials to pursue an array of aggressive implementing acts, policies, and practices, including those that are the subject of this investigation.

China has continued to emphasize the IDAR approach since it was first articulated in 2006 in broad-ranging five-year plans and technology development plans issued by China’s State Council, central government ministries and provincial and municipal governments, and the CCP. The IDAR approach also has been incorporated into numerous economic development plans for specific sectors, such as integrated circuits.⁵⁸

In 2010, the Chinese government announced another seminal technology development strategy, which calls for the accelerated development of seven so-called “strategic emerging industries” (SEIs): (1) energy efficient and environmental technologies, (2) next generation information technology, (3) biotechnology, (4) high-end equipment manufacturing, (5) new energy, (6) new materials, and (7) new energy vehicles.⁵⁹ The *12th Five-year National Strategic Emerging Industries Development Plan (12th Five-year SEI Plan)*⁶⁰ subsequently recommended specific fiscal and taxation policy support and set a target for SEIs to account for 8% of China’s economy by 2015 and 15% by 2020. The *12th Five-year SEI Plan* also aims to foster a group of Chinese enterprises – including state-owned enterprises – into “backbone enterprises” that can become

⁵⁷ *IDAR Opinions* § 5.

⁵⁸ *E.g., 12th Five-year Development Plan for the Integrated Circuit Industry* (Ministry of Industry and Information Technology, published Feb. 24, 2012) § 3(1), ¶ 3: “Maintain innovation drivers. Combine implementation of national science and technology major special projects and megaprojects, using innovation in technologies, modes, mechanisms, and systems as the impetus to make breakthroughs in a group of shared core technologies. Strengthen *introduce, digest, absorb, and re-innovate*, to stride down the path of open-type innovation and internationalized development.” (emphasis added).

⁵⁹ *State Council Decision on Accelerating the Development of Strategic Emerging Industries* (State Council, Guo Fa [2010], No. 32, issued Oct. 10, 2010).

⁶⁰ *Notice on Issuing the 12th Five-year National Strategic Emerging Industries Development Plan* (State Council, Guo Fa [2012] No. 28, issued July 9, 2012).

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market leaders domestically and compete globally.⁶¹ The Chinese government later reaffirmed and refined this strategy in its *13th Five-year Strategic Emerging Industries Development Plan*.⁶²

Notably, support for the IDAR strategy was reiterated in the CCP's 2013 *Third Plenum Decision*⁶³ (*Third Plenum Decision*) released in connection with the Third Plenary Session of the 18th National Congress of the CCP. IDAR's inclusion in the *Third Plenum Decision* is significant because the document was widely seen as setting forth the priorities of President Xi Jinping's new administration with respect to China's future economic development path.⁶⁴ By reaffirming that China should "establish and perfect a mechanism to encourage original innovation, integrated innovation, and introduce, absorb, digest, and re-innovate,"⁶⁵ the *Third Plenum Decision* signaled the CCP's continued high-level support for the IDAR approach to technology innovation.

In 2015, the State Council released the *Made in China 2025 Notice*,⁶⁶ which is China's ten-year plan for targeting ten strategic advanced technology manufacturing industries for promotion and development: (1) advanced information technology; (2) robotics and automated machine tools; (3) aircraft and aircraft components; (4) maritime vessels and marine engineering equipment; (5) advanced rail equipment; (6) new energy vehicles; (7) electrical generation and transmission equipment; (8) agricultural machinery and equipment; (9) new materials; and (10) pharmaceuticals and advanced medical devices.⁶⁷

While the *Made in China 2025 Notice* references market-oriented principles, it closely resembles China's other state-led, technology-related plans, such as the *MLP*, issued a decade earlier, in that it:

- Reaffirms the Chinese government's central role in economic planning;⁶⁸

⁶¹ For example, the *12th Five-year National Economic and Social Development Plan Outline* (adopted by the NPC on Mar. 14, 2011) calls for the cultivation of a group of backbone enterprises within strategic emerging industries. Ch. 10, §2 "Fostering the Development of Strategic Emerging Industries". The *12th Five-year SEI Plan* further specifies that backbone enterprises are to have "relatively strong indigenous innovation capacity and a technological leadership effects." § 2(3), "Guiding Thoughts, Fundamental Principles, and Development Targets". At the sectoral level, the *Guidelines for the Development and Promotion of the Integrated Circuit Industry* (State Council, issued June 24, 2014) laud the fact that China has established "a group of backbone enterprises with significant international competitiveness." § 1, ¶ 1. The *Guiding Opinion on Promoting International Industrial Capacity and Equipment Manufacturing Cooperation* (State Council, Guo Fa [2015] No. 30, issued May 13, 2015) provides that a "main target" of the policy is to "establish a group of backbone enterprises that possess international competitiveness and the ability to open up markets." § 2(6).

⁶² *Notice on Issuing the 13th Five-year National Strategic Emerging Industries Development Plan* (State Council, Guo Fa [2016] No. 67, issued Nov. 29, 2016).

⁶³ *CCP Central Committee Decision on Several Major Issues for Comprehensively Deepening Reform* (CCP Central Committee, issued Nov. 12, 2013) [*hereinafter* "*Third Plenum Decision*"].

⁶⁴ Third Plenums have historically been used to announce major economic reforms, such as the adoption of reform and opening during the Third Plenary Session of the 11th National Congress of the CCP in 1978, and the endorsement of the socialist market economy following the 14th National Congress of the CCP in 1993.

⁶⁵ *Third Plenum Decision* § 13.

⁶⁶ *Decision on Issuing "China Manufacturing 2025"* (State Council, Guo Fa [2015] No. 28, issued May 8, 2015).

⁶⁷ *Made in China 2025 Notice* § 3(6).

⁶⁸ *Made in China 2025 Notice* § 2(2).

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- Calls on all facets of society to mobilize behind the plan;⁶⁹
- Seeks technological breakthroughs in key areas for economic and security purposes;
- Promotes further civil-military integration and the two-way transfer and conversion of military and civilian technologies;⁷⁰
- Leverages state resources,⁷¹ policy support,⁷² and regulatory systems;⁷³
- Continues to promote import substitution and rely on indigenous products to meet growing demand in China;⁷⁴
- Reaffirms the leading role of backbone enterprises in technology development;⁷⁵ and
- Promotes Chinese enterprises to become dominant in the domestic market and internationally competitive in key industries.⁷⁶

The *Made in China 2025 Notice* expressly calls for China to achieve 40% “self-sufficiency” by 2020, and 70% “self-sufficiency” by 2025, in core components and critical materials in a wide range of industries, including aerospace equipment and telecommunications equipment.⁷⁷ The “*Made in China 2025*” *Key Area Technology Roadmap (Made in China Roadmap)* sets explicit market share targets that are to be filled by Chinese producers both domestically and globally in dozens of high-tech industries.⁷⁸

⁶⁹ *Made in China 2025 Notice* § 1(3).

⁷⁰ *Made in China 2025 Notice* § 3(1).

⁷¹ *Made in China 2025 Notice* § 4.

⁷² *Made in China 2025 Notice* § 1(3).

⁷³ See generally *Made in China 2025 Notice*. This is particularly the case in quality standard regulations as described in §§ 2(1) and 3(4).

⁷⁴ *Made in China 2025 Notice* § 1(2) describes the growing demand for new equipment, consumption, and safety, while § 1(3) calls for China to “rely more on Chinese equipment and Chinese brands.”

⁷⁵ *Made in China 2025 Notice* § 3(1).

⁷⁶ *Made in China 2025 Notice* § 1(3).

⁷⁷ *Made in China 2025 Notice*, Box 3.

⁷⁸ *Made in China 2025 Key Area Technology Roadmap*, (National Strategic Advisory Committee on Building a Powerful Manufacturing Nation, issued Oct. 10, 2015); see also U.S. CHAMBER, *MADE IN CHINA 2025: GLOBAL AMBITIONS BUILT ON LOCAL PROTECTIONS* 8 (2017). The *Made in China Roadmap* was released by the National Strategic Advisory Committee on Building a Powerful Manufacturing Nation (also known as the “National Manufacturing Strategy Advisory Committee”) which was established pursuant to the *Made in China 2025 Notice* with responsibility to provide advice and assessments on China’s major manufacturing policies. In August 2015, Vice Premier Ma Kai, who leads the Strong Manufacturing Country Leading Small Group, spoke at the Committee’s first meeting and lauded its establishment as a way to “strongly promote Made in China 2025.” National Strategic Advisory Committee on Building a Powerful Manufacturing Nation Established; Chaired by Ma Kai [Chinese], XINHUA (Aug. 26, 2015), available at http://www.xinhuanet.com/info/2015-08/26/c_134556815.htm (last visited Mar. 16, 2018). See also *Notice on the Establishment of the Strong Manufacturing Country Leading Small Group*, (General Office of the State Council, Guo Ban Fa [2015] No. 48, published June 24, 2015) (last visited March 16, 2018); and *National Strategic Advisory Committee on Building a Powerful Manufacturing Nation Established*, STATE INTELLECTUAL PROPERTY OFFICE OF THE P.R.C. (Aug. 26, 2015), available at http://www.sipo.gov.cn/yw/2015/201508/t20150826_1165829.html (last visited Dec. 21, 2017).

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For example, indigenous new energy vehicles are to achieve an 80% domestic market share⁷⁹ with foreign sales accounting for 10% of total sales by 2025.⁸⁰ Similarly, domestically produced energy equipment is to achieve 90% domestic market share, with exports accounting for 30% of production, by 2020,⁸¹ and renewable energy equipment with indigenous IP is to achieve 80% domestic market share by 2025.⁸² In comparison to previous plans, *Made in China 2025* expands its focus to capturing global market share, not just dominance in the China market, and is part of a “broader strategy to use state resources to alter and create comparative advantage in these sectors on a global scale.”⁸³

The *Made in China 2025 Notice* sets forth clear principles, tasks, and tools to implement this strategy, including government intervention and substantial government, financial and other support to the targeted Chinese industries.⁸⁴ Domestic dominance and global competitiveness are to be achieved by upgrading the entire research, development, and production chain, with emphasis on localizing the output of components and finished products.⁸⁵ Foreign technology acquisition through various means remains a prime focus under *Made in China 2025* because China is still catching up in many of the areas prioritized for development, and as U.S. companies are front-runners in many of these areas.⁸⁶

China’s Ministry of Industry and Information Technology (MIIT) has explained that *Made in China 2025* is part of a three-step strategy for China to become a world leader in advanced manufacturing. Under the first step, by 2025, China should “approach the level of manufacturing powers Germany and Japan during the period when they realized industrialization.” In the second step, China should “enter the front ranks of second tier manufacturing powers” by 2035. In the final step, China should “enter the first tier of global manufacturing powers” by 2045, at which point China will have “innovation-driving capabilities,” “clear competitive advantages,” and “world-leading technology systems and industrial systems.”⁸⁷

In recent years, China also issued policies specific to advanced technologies in which U.S. firms are market leaders. Information and communications technologies have been a focal point, with more and more strategies emanating from the *National Informatization Development Strategy* (2006-2020), such as the *National Integrated Circuit Industry Development Outline*, the *Internet*

⁷⁹ *Made in China 2025 Key Area Technology Roadmap* § 6.2.2.

⁸⁰ *Made in China 2025 Key Area Technology Roadmap* § 6.2.2.

⁸¹ *Made in China 2025 Key Area Technology Roadmap* § 7.1.2.

⁸² *Made in China 2025 Key Area Technology Roadmap* § 7.1.2.

⁸³ U.S. CHAMBER, *MADE IN CHINA 2025: GLOBAL AMBITIONS BUILT ON LOCAL PROTECTIONS* 6 (2017).

⁸⁴ See AM. CHAMBER OF COMMERCE IN SHANGHAI, *Submission, Section 301 Hearing 2* (Sept. 28, 2017); NAT’L. ASS’N OF MANUFACTURERS [*hereinafter* “NAM”], *Submission, Section 301 Hearing 3* (Sept. 28, 2017); WILEY REIN LLP, *Submission, Section 301 Hearing 3-4* (Sept. 28, 2017); BJÖRN CONRAD, ET AL., *MERCATOR INST. FOR CHINA STUDIES* [*hereinafter* “MERICS”], *MADE IN CHINA 2025* 7, 11 (2016); and U.S. CHAMBER OF COMMERCE, *MADE IN CHINA 2025: GLOBAL AMBITIONS BUILT ON LOCAL PROTECTIONS* 7, 15, 18 (2017).

⁸⁵ IGCC REPORT at 121.

⁸⁶ IGCC REPORT at 121.

⁸⁷ *Made in China 2025 Explanation 6: The Manufacturing Power ‘Three-Step’ Strategy*, MINISTRY OF INDUSTRY AND INFORMATION TECHNOLOGY (May 19, 2015), <http://www.miit.gov.cn/n1146295/n1146562/n1146655/c3780688/content.html>; see also IGCC REPORT at 47-48.

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Plus Plan, the “Broadband China” strategy and corresponding implementation plan, and the designation of next-generation information technology as a “strategic emerging industry.”⁸⁸

In addition, China recently announced that it will pursue an “innovation-driven” development strategy⁸⁹ and that it has made breakthroughs in higher-end innovation a top priority.⁹⁰ At the 19th National Congress of the CCP, held in October 2017, President Xi Jinping’s remarks specifically referenced the goal of building China into a “powerful nation [*or* power] in science and technology, quality, aerospace, the Internet, and transportation” and called for “accelerating the construction of [China as] a manufacturing power” by “accelerating the development of advanced manufacturing industry” and “promoting the deep integration of the Internet, big data, and artificial intelligence with the real economy.”⁹¹

Like the *MLP* a decade ago, newer plans such as the *Made in China 2025 Notice* and the various plans focused on information and communications technologies call for a wide array of Chinese government intervention and financial and other support designed to transform China into a world leader in technology. While these policies and practices are not necessarily new, their actual and potential effects on foreign companies and their technologies have become much more serious. As James Lewis of CSIS explained in his submission to USTR:

What is new is that unfair trade, security and industrial policies, tolerable in a smaller developing economy, are now combined with China’s immense, government-directed investment and regulatory policies to put foreign firms at a disadvantage... China now has the wealth, commercial sophistication and technical expertise to make its pursuit of technological leadership work. The fundamental issue for the U.S. and other western nations, and the IT sector is how to respond to a managed economy with a well-financed strategy to create a domestic industry intended to displace foreign suppliers.⁹²

As detailed in Sections II through VI of this report, a key part of China’s technology drive involves the acquisition of foreign technologies through acts, policies, and practices by the Chinese government that are unreasonable or discriminatory and burden or restrict U.S. commerce. These acts, policies, and practices work collectively as part of a multi-faceted strategy to advance China’s industrial policy objectives. They are applied across a broad range of sectors, overlap in their use of policy tools (*e.g.*, the issuance of planning documents and guidance catalogues), and are implemented through a diverse set of state and state-backed actors, including state-owned enterprises.

- Section II describes the Chinese government’s use of foreign ownership restrictions, such as joint venture (JV) requirements and foreign equity limitations, other foreign

⁸⁸ IGCC REPORT at 44.

⁸⁹ IGCC REPORT at 41 (“This innovation-driven development strategy (IDDS) was officially promulgated by the Chinese authorities in May 2016 and provides a ‘top-level design and systemic plan’ for China’s innovation over next 30 years.”).

⁹⁰ IGCC REPORT at xiii-xiv.

⁹¹ Xi Jinping, Speech at the 19th CPC National Congress: Secure a Decisive Victory in Building a Moderately Prosperous Society in All Respects and Strive for the Great Success of Socialism with Chinese Characteristics for a New Era (Oct. 18, 2017), *available in Chinese at* <http://www.gatj.gov.cn/html/6/wjjh/17/10/3257-6.html>.

⁹² James Lewis, CSIS, *Submission, Section 301 Hearing 1* (Sept. 27, 2017).

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investment restrictions, and the administrative licensing and approvals process to require or pressure the transfer of technology from U.S. companies to Chinese entities.

- Section III describes how U.S. companies seeking to license technologies to Chinese entities must do so on non-market-based terms that favor Chinese recipients.
- Section IV describes how the Chinese government directs and unfairly facilitates the systematic investment in, and acquisition of, U.S. companies and assets by Chinese entities, to obtain cutting-edge technologies and intellectual property and generate large-scale technology transfer in industries deemed important by state industrial plans.
- Section V describes how the Chinese government has conducted or supported cyber intrusions into U.S. commercial networks targeting confidential business information held by U.S. firms. Through these cyber intrusions, China's government has gained unauthorized access to a wide range of confidential business information, including trade secrets, technical data, negotiating positions, and sensitive and proprietary internal communications.
- Section VI describes other acts, policies, and practices of by the Chinese government to acquire foreign technologies, including measures purportedly related to national security or cybersecurity, inadequate intellectual property protection, the *Antimonopoly Law of the People's Republic of China*, the *Standardization Law of the People's Republic of China*, and talent acquisition.

II. China's Unfair Technology Transfer Regime for U.S. Companies in China

A. Introduction

The previous section of this report detailed China's technology drive and how it seeks to support prioritized industries and foster "national champions" by pursuing technology advancement through the acquisition and "re-innovation" of foreign technology.⁹³ One method China uses to achieve this goal is through restrictions on foreign investment, which it uses to selectively grant market access to foreign investors in exchange for commitments to transfer technology. This section will detail how China uses inbound foreign ownership restrictions, such as joint venture (JV) requirements and foreign equity limitations, and the administrative licensing and approvals process to require or pressure the transfer of technology.

1. Key Elements of China's Technology Transfer Regime

The evidence collected in this investigation from hearing witnesses, written submissions, public reports, journal articles, and other reliable sources indicates there are two key aspects of China's technology transfer regime for inbound foreign investment.

First, the Chinese government uses foreign ownership restrictions, such as formal and informal JV requirements, and other foreign investment restrictions to require or pressure technology transfer from U.S. companies to Chinese entities. These requirements prohibit foreign investors from operating in certain industries unless they partner with a Chinese company, and in some cases, unless the Chinese partner is the controlling shareholder. Second, the Chinese government uses its administrative licensing and approvals processes to force technology transfer in exchange for the numerous administrative approvals needed to establish and operate a business in China.

These two aspects of China's technology transfer regime are furthered by the non-transparent and discretionary nature of China's foreign investment approvals system. Prior to 2001, China often explicitly mandated technology transfer, requiring the transfer of technology as a *quid pro quo* for market access.⁹⁴ In 2001, China joined the WTO and committed not to condition the approval of investment or importation on technology transfer.⁹⁵ Since then, according to numerous sources, China's technology transfer policies and practices have become more implicit, often carried out through oral instructions and "behind closed doors."⁹⁶

⁹³ See Section I.C.

⁹⁴ See, e.g., OFFICE OF TECH. ASSESSMENT, 100TH CONG., OTA-ISC-3401, REP. ON TECHNOLOGY TRANSFER TO CHINA (1987); OFFICE OF STRATEGIC INDUS. & ECON. SEC. BUREAU OF EXPORT ADMIN. & DFI INT'L., U.S. DEPT. COMMERCE, U.S. COMMERCIAL TECHNOLOGY TRANSFER TO THE PEOPLE'S REPUBLIC OF CHINA (Jan. 1999); THOMAS J. HOLMES ET AL., FED. RES. BANK OF MINNEAPOLIS, RES. DEP'T STAFF REP. 486, QUID PRO QUO: TECHNOLOGY CAPITAL TRANSFERS FOR MARKET ACCESS IN CHINA 3 (2015).

⁹⁵ China's accession agreements include the Protocol on the Accession of the People's Republic of China, WTO Doc. WT/L/432 (Nov. 23, 2001) [*hereinafter* "Accession Protocol"], and the Report of the Working Party on the Accession of China, WTO Doc. WT/ACC/CHN/49 (Oct. 1, 2001) [*hereinafter* "Working Party Report"]. China's technology transfer commitments are contained in Accession Protocol, General Provisions ¶ 7.3 and Working Party Report ¶ 203 (incorporated into the Accession Protocol through ¶ 1.2).

⁹⁶ See, e.g., THOMAS J. HOLMES ET AL., FED. RES. BANK OF MINNEAPOLIS, RES. DEP'T STAFF REP. 486, QUID PRO QUO: TECHNOLOGY CAPITAL TRANSFERS FOR MARKET ACCESS IN CHINA 3 (2015); TAI MING CHEUNG ET AL., U.S.-

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As the Information Technology and Innovation Foundation (ITIF) stated in its written submission in this investigation:

Chinese officials are careful not to put such requirements in writing, often resorting to oral communications and informal 'administrative guidance' to pressure foreign firms to transfer technology.⁹⁷

According to another expert, Chinese measures and practices "no longer spell out the most controversial requirements in black and white. Verbal instructions and requests to 'volunteer' one's technology are today's rules of the road."⁹⁸ Similarly, a 2014 study of China's foreign investment policies conducted for the European Union found that China has relied more heavily on opaque administrative processes to promote its technology transfer goals as international trade rules have limited its ability to *formally* codify foreign investment restraints.⁹⁹

Another particular challenge is the complex relationship between China's private sector and the government, which provides both direct and indirect mechanisms by which the government may pressure foreign companies. In some cases, the Chinese government may directly pressure the foreign company to transfer technology, but in other cases the demand may come from a Chinese partner.¹⁰⁰ As discussed in more detail below, when confronted with this latter scenario, foreign companies often reasonably understand that the demand originated from the government,¹⁰¹ as "business decisions [in China] are very much influenced by the public policy objectives pursued by the State and the CCP."¹⁰² Moreover, because the Chinese partner serves as the applicant in the approval process on behalf of the JV, the Chinese partner is able, in many cases, to control the communication channels between the foreign investor and the Chinese government authorities.¹⁰³ Section IV of this report further details how the Chinese government and Chinese Communist Party (CCP) utilize a wide array of actors, regulations, and informal guidance to achieve China's industrial policy objectives.¹⁰⁴

CHINA ECON. & SEC. REV. COMM'N, PLANNING FOR INNOVATION: UNDERSTANDING CHINA'S PLANS FOR TECHNOLOGICAL, ENERGY, INDUSTRIAL AND DEFENSE DEVELOPMENT 163 (2016) (citing US-CHINA BUSINESS COUNCIL [*hereinafter* "USCBC"], CHINA'S STRATEGIC EMERGING INDUSTRIES: POLICY, IMPLEMENTATION, CHALLENGES, AND RECOMMENDATIONS (Mar. 2013)); 2016 USTR REPORT TO CONGRESS ON CHINA'S WTO COMPLIANCE 104 (2017).

⁹⁷ ITIF, *Submission, Section 301 Hearing* 5-6 (Oct. 25, 2017).

⁹⁸ See Covington & Burling LLP, *Measures and Practices Restraining Foreign Investment in China*, prepared for the European Commission Directorate-General for Trade 63-4 (Aug. 2014) (citing to JAMES MCGREGOR, NO ANCIENT WISDOM, NO FOLLOWERS: THE CHALLENGES OF CHINESE AUTHORITARIAN CAPITALISM 38 (2012)).

⁹⁹ Covington & Burling LLP, *Measures and Practices Restraining Foreign Investment in China*, prepared for the European Commission Directorate-General for Trade 11 (Aug. 2014).

¹⁰⁰ USCBC, 2017 MEMBER SURVEY 9 (2017).

¹⁰¹ USCBC, 2017 MEMBER SURVEY 9 (2017).

¹⁰² EUROPEAN COMM'N, COMMISSION STAFF WORKING DOCUMENT ON SIGNIFICANT DISTORTIONS IN THE ECONOMY OF THE PEOPLE'S REPUBLIC OF CHINA FOR THE PURPOSES OF TRADE DEFENCE INVESTIGATIONS 426 (SWD(2017)483 FINAL/2, 39 (Dec. 20, 2012).

¹⁰³ U.S. CHAMBER OF COMMERCE, CHINA'S APPROVAL PROCESS FOR INBOUND FOREIGN INVESTMENT: IMPACT ON MARKET ACCESS, NATIONAL TREATMENT AND TRANSPARENCY 38-9 (Nov. 2012).

¹⁰⁴ See e.g., Mark Wu, *The 'China, Inc.' Challenge to Global Trade Governance*, 57 HARV. INT'L L. J. 284 (May 2016) ("China's economic structure involves a complex web of overlapping networks and relationships—some formal and others informal—between the state, Party, SOEs, private enterprises, financial institutions, investment

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The fact that China systematically implements its technology transfer regime in informal and indirect ways makes it “just as effective [as written requirements], but almost impossible to prosecute.”¹⁰⁵ This difficulty is further exacerbated by the reality that foreign companies have no effective recourse in China and have been hesitant to report these informal pressures for fear of Chinese government retaliation and the potential loss of business opportunities.¹⁰⁶ Nevertheless, as shown below, confidential industry surveys, where companies may report their experiences anonymously, make clear that they are receiving such pressure. The lack of transparency in the regulatory environment, the complex relationship between the State and the private sector, and concerns about retaliation have enabled China's technology transfer regime to persist for more than a decade.¹⁰⁷

In the course of this investigation, certain Chinese trade associations and law firms representing Chinese interests defended China's technology transfer regime, arguing that technology transfer decisions are products of “voluntary agreement” without “government intervention.”¹⁰⁸ They also asserted that JV and technology transfer arrangements are distinct from broader national industrial policies, and that domestic and foreign companies can choose when and whether to establish business partnerships.¹⁰⁹ Further, they stated that no Chinese laws or regulations explicitly force foreign investors to transfer technology, and that the central government has instructed local governments not to require technology transfer.¹¹⁰

vehicles, trade associations, and so on.”). *See also* EUROPEAN COMM'N, COMMISSION STAFF WORKING DOCUMENT ON SIGNIFICANT DISTORTIONS IN THE ECONOMY OF THE PEOPLE'S REPUBLIC OF CHINA FOR THE PURPOSES OF TRADE DEFENCE INVESTIGATIONS 426 SWD(2017)483 FINAL/2, 13 (Dec. 20, 2012) (“Therefore, even though today the Chinese economy is to some extent made up of non-state actors...the decisive role of the State in the economy remains intact, with tight interconnections between government and enterprises (going far beyond the boundaries of SOEs) in place.”).

¹⁰⁵ ITIF, STOPPING CHINA'S MERCANTILISM: A DOCTRINE OF CONSTRUCTIVE, ALLIANCE-BACKED CONFRONTATION 18 (Mar. 2017).

¹⁰⁶ *See* U.S. CHAMBER OF COMMERCE, CHINA'S APPROVAL PROCESS FOR INBOUND FOREIGN INVESTMENT: IMPACT ON MARKET ACCESS, NATIONAL TREATMENT AND TRANSPARENCY 2, 40 (Nov. 2012). ITIF's submission in this investigation also illustrates how the threat of Chinese government retaliation leads U.S. companies to avoid seeking redress. For example, the ITIF submission provides that, “[a] top executive at a large U.S. plant biotechnology firm told ITIF recently of its experience in China. China was dumping the chemicals for a particular herbicide the U.S. company sold on global markets. The company confronted the Chinese agricultural minister with fact and said that it was planning to bring a complaint before the WTO. The Chinese minister simply responded that if the case were brought, the company would lose access to the Chinese market. Needless to say, the U.S. firm did not bring the case, even as it continued to lose global market share and jobs in the U.S.” ITIF, *Submission, Section 301 Hearing* 6 (Oct. 25, 2017).

¹⁰⁷ *See, e.g.*, U.S. CHAMBER OF COMMERCE, CHINA'S APPROVAL PROCESS FOR INBOUND FOREIGN INVESTMENT: IMPACT ON MARKET ACCESS, NATIONAL TREATMENT AND TRANSPARENCY 38-9 (Nov. 2012); EUROPEAN CHAMBER OF COMMERCE, CHINA MANUFACTURING 2025 15-16 (2017) (“For example, a longstanding feature of China's industrial policy is that foreign companies are often pushed to transfer technology as the price of market entry...Forced technology transfer is nothing new to FIEs. However, it is now an increasing requirement for more advanced technologies to be shared.”).

¹⁰⁸ *See generally*, CHINA CHAMBER OF COMMERCE FOR IMPORT & EXPORT OF MACHINERY & ELECTRONIC PRODUCTS [hereinafter “CCCME”], *Submission, Section 301 Hearing* 6 (Oct. 20, 2017); CHINA CHAMBER OF INT'L. COMMERCE [hereinafter “CCOIC”], *Submission, Section 301 Hearing* 12 (Sept. 28, 2017).

¹⁰⁹ CCCME *Submission, Section 301 Hearing* 8-9 (Sept. 27, 2017).

¹¹⁰ CCOIC, *Submission, Section 301 Hearing* 124 (Sept. 28, 2017).

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USTR has carefully considered these arguments and finds them unsupported by the evidence and unconvincing. As set forth in detail below, the weight of the evidence shows that China uses foreign ownership restrictions, including joint venture requirements and equity limitations, and other investment restrictions to require or pressure technology transfer from U.S. companies to Chinese entities. The evidence further establishes that China uses discretionary and non-transparent administrative reviews and licensing processes to pressure technology transfer or force the unnecessary disclosure of sensitive technical information.

2. A Persistent Problem for U.S. Business

Due to the fact that much of China's technology transfer regime occurs "behind closed doors," confidential surveys provide an important source of information on how the regime works in practice. These surveys make clear that China's technology transfer regime is a persistent problem for U.S. companies in China, particularly in high-tech sectors targeted by the Chinese government.

According to the US-China Business Council's (USCBC) most recent member survey, 19 percent of responding companies stated that in the last year they had been directly asked to transfer technology to China.¹¹¹ Of these, 33 percent said that the request came from a central government entity and 25 percent that it came from the local government.¹¹²

Annual surveys conducted by the American Chamber of Commerce in China (AmCham China) reflect a similar problem. For example, in a 2013 survey of 325 U.S. companies in various sectors, more than one-third of respondents (35 percent) reported that they were concerned about "de facto technology transfer requirements as a condition for market access."¹¹³ In a 2017 survey, 36 percent of respondents cited "reducing the need for us to engage in technology transfer" as one factor that would cause them to increase their investment levels in China.¹¹⁴

Other evidence indicates that this problem may be even more widespread than these surveys suggest. For example, one participant testified in the hearing for this investigation that while he was aware of these survey results, his own research indicated through "many, many private interviews with companies... *we did not find a single instance in which companies had not felt pressure and in many cases caved into the pressure to share technology.*"¹¹⁵

¹¹¹ USCBC, 2017 MEMBER SURVEY 9 (2017).

¹¹² USCBC, 2017 MEMBER SURVEY 9 (2017) (67 percent said the request was made directly by a Chinese company during the negotiations. The survey states, "[t]he request most frequently comes from a Chinese partner, rather than a government entity. While some of these requests may be a normal part of commercial negotiations, in many cases the hand of the Chinese government is behind these requests.").

¹¹³ THOMAS J. HOLMES ET AL. FED. RES. BANK OF MINNEAPOLIS, RES. DEP'T STAFF REP. 486, QUID PRO QUO: TECHNOLOGY CAPITAL TRANSFERS FOR MARKET ACCESS IN CHINA 8 (2015) (citing AM. CHAMBER OF COMMERCE IN CHINA, CHINA BUSINESS CLIMATE SURVEY REPORT (2013)).

¹¹⁴ AMCHAM CHINA, 2018 CHINA BUSINESS CLIMATE SURVEY REPORT 44 (2017). Of these, 22 percent stated that this reduction would be somewhat significant to their investment decision, 9 percent as very significant and 5 percent as extremely significant.

¹¹⁵ Richard Ellings, COMMISSION ON THE THEFT OF INTELLECTUAL PROPERTY [*hereinafter* "IP Commission"], *Testimony, Section 301 Hearing*, 37 (Oct. 10, 2017) (emphasis added).

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Moreover, in sectors that are the focus of the Chinese government's industrial policy initiatives, the pressure on U.S. companies to form JVs and transfer technology is particularly intense. For example, according to AmCham China's 2013 survey, 42 percent of respondents in advanced technology sectors (including aerospace, automotive, chemical, and information technology) were concerned about "de facto technology transfer requirements as a condition for market access."¹¹⁶ Only 3 percent of surveyed companies reported that these technology transfer requirements were decreasing, while 37 percent reported they were increasing and 26 percent that they were staying the same.¹¹⁷

A 2017 survey of the U.S. integrated circuit design and manufacturing industry conducted by the Department of Commerce's Bureau of Industry and Security yielded similar results: 25 U.S. integrated circuit companies responded that they will have to form JVs with Chinese entities and transfer intellectual property to obtain or maintain access to the China market.¹¹⁸ In 2017, these 25 integrated circuit companies accounted for more than \$25 billion in total sales and over a quarter (26 percent) of all integrated circuits made and sold in the United States.¹¹⁹

U.S. companies are not alone in their concerns about China's technology transfer regime. According to a 2011 public consultation process conducted by the EU, the top barriers to investment in China included technology transfer requirements; JV requirements; foreign ownership limitations; prohibitions or limitations on the scope of business investments; licensing requirements/procedures; and regulatory approval procedures.¹²⁰

B. Foreign Ownership Restrictions as Used in China's Technology Transfer Regime

Foreign ownership restrictions such as JV requirements¹²¹ and foreign equity limitations are a cornerstone of China's technology transfer regime. China's *Catalogue of Industries for Guiding Foreign Investment (Foreign Investment Catalogue)*, and other rules and regulations, require U.S. companies seeking to invest in certain industry sectors to enter into cooperative

¹¹⁶ AMCHAM CHINA, 2013 CHINA BUSINESS CLIMATE SURVEY REPORT 10 (2013).

¹¹⁷ *Id.* ("N/A or don't know" responses omitted).

¹¹⁸ U.S. DEP'T OF COMMERCE, BUREAU OF INDUS. & SECURITY, ASSESSMENT OF THE U.S. INTEGRATED CIRCUIT DESIGN AND MANUFACTURING INDUSTRY (forthcoming).

¹¹⁹ U.S. DEP'T OF COMMERCE, BUREAU OF INDUS. & SECURITY, ASSESSMENT OF THE U.S. INTEGRATED CIRCUIT DESIGN AND MANUFACTURING INDUSTRY (forthcoming).

¹²⁰ EUROPEAN COMM'N, IMPACT ASSESSMENT REPORT ON THE EU-CHINA INVESTMENT RELATIONS, SWD (2013) 185final 12 90, 95 (May 23, 2013).

¹²¹ The three most common corporate forms for foreign-invested entities (FIEs) in China are contractual joint ventures, equity joint ventures, and wholly foreign-owned enterprises. Each of these forms has different requirements and restrictions under Chinese law. See generally *Law of the People's Republic of China on Chinese-Foreign Contractual Joint Ventures* (adopted at the First Session of the Seventh NPC on Apr. 13, 1988, amended by the 18th Session of the Standing Committee of the Ninth NPC on Oct. 31, 2000, further amended Sep. 3, 2016, in Executive Order No. 51, and Nov. 7, 2016, in Executive Order No. 57, and Nov. 4, 2017, in Executive Order No. 81); *Law of the People's Republic of China on Chinese-Foreign Equity Joint Ventures* (adopted at the Second Session of the Fifth NPC on July 1, 1979, amended Apr. 4, 1990, in Executive Order No. 27, further amended Mar. 15, 2001, in Executive Order No. 48, and Sept. 3, 2016, in Executive Order No. 51); *Law of the People's Republic of China on Wholly Foreign-Owned Enterprises* (adopted by NPC on Apr. 12, 1986, amended Oct. 31, 2000, further amended Sept. 3, 2016).

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arrangements with Chinese partners.¹²² According to submissions and testimony in this investigation, China's imposition of these requirements precludes U.S. companies from entering the market on their own terms and lays the foundation for the Chinese government to require or pressure technology transfer. For example, the U.S. Chamber of Commerce states in its written submission that:

As companies negotiate the terms of the joint venture, the foreign side may be asked—or required—to transfer its technology in order to finalize the partnership. Especially in instances where the Chinese partner is a state-owned or state-directed company, foreign companies have limited leverage in the negotiation if they wish to access the market. Although this type of technology transfer may not be explicitly mandated in a Chinese law or regulation, it is often an unwritten rule for market access.¹²³

The USCBC similarly states that JV and other investment restrictions necessarily create an “unbalanced negotiation” with respect to technology transfer:

Chinese companies are in an inherently stronger position since their participation is required to form a joint venture or to provide the remaining equity in restricted sectors. As a consequence, a request for technology transfer made by a Chinese party in a business negotiation can reasonably be interpreted by foreign parties as a requirement for the deal to be concluded.¹²⁴

The National Association of Manufacturers (NAM) stressed the negative effects of China's technology transfer regime on U.S. companies' global competitiveness:

This tilting of the playing field leaves manufacturers with untenable choices: they must either transfer their technology to the new China-based joint venture, or they must cede the world's fastest-growing market to foreign competitors, thus harming both their short-term growth and their long-term competitiveness.¹²⁵

1. The Foreign Investment Catalogue and Technology Transfer

China maintains a detailed system for administering inbound foreign investment. The *Foreign Investment Catalogue* is a starting point for analyzing the restrictions on foreign investment in a particular industry, and is an important element of China's technology transfer regime.¹²⁶ First

¹²² *Catalogue of Industries for Guiding Foreign Investment (2017 Amendment)* (NDRC, MOFCOM, Order No. 4, issued June 28, 2017).

¹²³ U.S. CHAMBER OF COMMERCE, *Submission, Section 301 Hearing 15* (Oct. 3, 2017).

¹²⁴ USCBC, *Submission, Section 301 Hearing 6-7* (Sept. 28, 2017).

¹²⁵ NAT'L. ASS'N OF MANUFACTURERS [hereinafter “NAM”], *Submission, Section 301 Hearing 3* (Sept. 28, 2017). See also Lee Branstetter, *Submission, Section 301 Hearing 2, 3* (Sept. 28, 2017) (U.S. companies are forced to choose between protecting their valuable technologies or losing access to a critical market. If they choose to forego the Chinese market to protect their valuable intellectual property, their foreign competitors exploit the market opportunity, thereby inhibiting U.S. companies' global competitiveness in the long-run).

¹²⁶ In addition to the *Foreign Investment Catalogue*, there are thousands of other regulations, rules, and regulatory documents related to foreign investment that are issued by central government authorities, as well as a countless local government regulations and restrictions that must be consulted to fully understand the restrictions foreign investors face in any particular sector. See Covington & Burling LLP, *Measures and Practices Restraining Foreign*

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issued in 1995, and most recently revised in 2017, the *Foreign Investment Catalogue* has historically divided industries into three basic categories: (1) “encouraged,” (2) “restricted,” and (3) “prohibited.”¹²⁷ Industries not listed in one of these categories generally are considered to be “permitted.”

Different categories of investment generally lead to different degrees of approval scrutiny or application requirements. For example, foreign investments in “restricted” industries are subject to stricter government review and a case-by-case administrative approval process.¹²⁸ “Encouraged” industries benefit from special preferences and from a file-for-the record system of approvals, but can still be subject to investment restrictions.¹²⁹ Moreover, even for “encouraged” sectors, stakeholders have expressed concerns, based on past experiences, that once China’s economy has achieved self-sufficiency in a particular industry and closed the technology gap, it will impose additional requirements or restrictions in these industries.¹³⁰

Since its inception, the *Foreign Investment Catalogue* has required that investments in certain sectors take the form of a JV, that the proportion of foreign equity investment in the JV be capped at a particular level, that the Chinese party hold a controlling interest, and imposed other restrictions.¹³¹ These arrangements may take different forms including: (i) a requirement that the U.S. company enter into an equity joint venture (EJV) or contractual joint venture (CJV) with a Chinese party; (ii) a requirement that Chinese parties must be controlling shareholders or hold

Investment in China, prepared for the European Commission Directorate-General for Trade 5 (Aug. 10, 2014) (reviewing 39 central government agencies that promulgated 137,328 measures affecting foreign investment that were in effect at the time of the survey).

¹²⁷ In 2017, a “negative list” approach was adopted under which the catalogue was divided between a list of “encouraged” sectors and a “Foreign Investment Access Negative List” (Negative List), which consisted of three types of industries: (a) “restricted” (b) “prohibited” and (c) certain “encouraged” industries subject to limitations on shareholder structure or other limitations. This approach is fundamentally similar to previous catalogues and merely re-categorizes the restricted and prohibited industries under the rubric of a Negative List. Further, the Negative List is not a comprehensive identification of all foreign investment restrictions as it is based on earlier catalogues, which as described above, do not comprehensively list all investments restrictions that may apply to foreign investors in China. *Foreign Investment Catalogue*.

¹²⁸ See WTO Secretariat, *Trade Policy Review: China*, ¶2.45-¶2.76, WT/TPR/S/300 (May 27, 2014).

¹²⁹ Projects in the “encouraged” category may be eligible for certain preferential policies, such as customs duty preferences on the importation of certain capital goods. See e.g., *General Administration of Customs Announcement On Implementing Issues Regarding Foreign Investment Industry Guiding Catalogue (amended 2017)* §1 (GAC, 2017 Announcement No. 30, issued July 17, 2017). Encouraged industries subject to foreign equity restrictions are listed twice, once under the encouraged category and then again under the restricted category. *Foreign Investment Catalogue*.

¹³⁰ U.S. CHAMBER, *MADE IN CHINA 2025: GLOBAL AMBITIONS BUILT ON LOCAL PROTECTIONS* 27 (2017); EUROPEAN CHAMBER OF COMMERCE, *CHINA MANUFACTURING 2025* 15 (2017). See also TAI MING CHEUNG ET AL., U.S.-CHINA ECON. & SEC. REV. COMM’N, *PLANNING FOR INNOVATION: UNDERSTANDING CHINA’S PLANS FOR TECHNOLOGICAL, ENERGY, INDUSTRIAL AND DEFENSE DEVELOPMENT* 166 (2016) (“In cases where China has no bargaining power but wants the technology, it will allow 100 percent foreign ownership since that is the only choice. An example of an ‘encouraged’ investment with no JV or equity requirements is ‘IC design, manufacturing of 28 nm and below large-scale digital IC, manufacturing of 0.11-micron and below analog and mixed signal IC, manufacturing of MEMS and compound semiconductor IC, and BGA, PGA, CSP, MCM, and other advanced packaging and testing.’ This category does not specify any joint venture or Chinese controlled entity requirement.”).

¹³¹ See TAI MING CHEUNG ET AL., U.S.-CHINA ECON. & SEC. REV. COMM’N, *PLANNING FOR INNOVATION: UNDERSTANDING CHINA’S PLANS FOR TECHNOLOGICAL, ENERGY, INDUSTRIAL AND DEFENSE DEVELOPMENT* 166 (2016); *Foreign Investment Catalogue*.

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the majority of shares in the venture; and (iii) other types of restrictions on foreign ownership or control.¹³²

Although reforms to China's foreign investment regime have enabled other forms of investments, including wholly-owned foreign enterprises (WFOEs) in certain sectors, ownership restrictions continue to operate in many key sectors important to foreign investors, including in the services, agriculture, extractive industries, and manufacturing sectors.

Currently, 35 sectors remain in the "restricted" category of the *Foreign Investment Catalogue*.¹³³ The category includes, *inter alia*, the following sectors, which are subject to equity limits and/or local partner requirements (see Table II.1).

Table II.1: Examples of Equity Restrictions and Local Partner Requirements in China's 2017 *Foreign Investment Catalogue*

Sector	Summary of Requirements
Selection and cultivation of new varieties of crops and production of seeds	Chinese party must be the controlling shareholder.
Exploration and development of oil and natural gas	Limited to CJV or EJV
Manufacturing whole automobiles	Chinese party's investment cannot be lower than 50 percent, and the same foreign investor may establish no more than two JVs in China for the same kind of automobiles, subject to certain exceptions.
Manufacturing commercial aircraft	Chinese party must be the controlling shareholder.
Construction and operation of nuclear power plants	Chinese party must be the controlling shareholder.
Value-added Telecommunications Services	Foreign investment cannot exceed 50 percent, excluding e-commerce, and is limited to WTO commitments. Note that China classifies a broad range of internet and technology-related services under this sector.
Basic telecommunications services	Chinese party must be the controlling shareholder and foreign investment is limited to WTO commitments.
Banks	Foreign financial institution investment cannot exceed 20 percent or 25 percent depending on how the investment is structured.
Medical institutions	Limited to CJV or EJV.
Surveying and mapping companies	Chinese party must be the controlling shareholder.

Source: *Foreign Investment Catalogue (2017 Amendment)*.

By promoting foreign investment in certain industries while limiting or altogether prohibiting investment in others, the Chinese government uses its foreign investment regime to channel

¹³² *Foreign Investment Catalogue*.

¹³³ Sectors in the "restricted" category are described in Appendix D to this Report.

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foreign investment into industries of its choosing to support policy objectives.¹³⁴ For example, the U.S. Chamber of Commerce in a March 2017 report on the *Made in China 2025* initiative, notes that foreign investment restrictions impact companies in the plan's targeted industries:

These restrictions either block opportunities for foreign companies to operate in the market, or, in some cases, create a de facto technology transfer requirement to the Chinese partner as a precondition for market access.¹³⁵

These technology transfer pressures occur not only in the high-tech sectors targeted by *Made in China 2025* but also in more traditional sectors in which China has sought to obtain advanced technologies through the imposition of JV requirements. The shale gas industry provides one example of how the *Foreign Investment Catalogue* is used to channel investment to support industrial policy objectives. In this industry, China seeks to acquire foreign technologies in order to unlock the potential of its shale reserves located in geologically complex areas, and has explicitly stated in its industrial policies that “cooperation” with foreign companies should be used as one way to introduce this technology to China. For example, China's *Shale Gas Development Plan (2011-2015)* encourages international cooperation to “absorb and emulate mature advanced technologies from abroad and create core technologies for exploration and development that possess ‘Chinese characteristics.’”¹³⁶ In addition, China's *Shale Gas Industrial Policy* reiterates that China will encourage domestic enterprises to engage with foreign enterprises “that possess advanced shale gas technology” in technical cooperation in order to “introduce”¹³⁷ shale gas technology and operational experience.¹³⁸ Accordingly, oil and natural gas exploration and development continue to be subject to a JV requirement in the *Foreign Investment Catalogue*.¹³⁹ As discussed in more detail in Section V.B of this report, China has also used cyber intrusions to obtain technology and sensitive commercial information from U.S. companies operating in the oil and gas sectors, underscoring how the Chinese government uses a range of tools at its disposal to achieve its industrial policy objectives and to effect the transfer of technology from U.S. companies.

Foreign companies typically prefer to invest in China through a WFOE, rather than a JV, if the option is available. This preference often stems from concerns about the loss of control over their valuable technologies.¹⁴⁰ In a survey of 1,000 companies conducted on behalf of the EU, only 12 percent of respondents reported they would have chosen their current JV structure in the

¹³⁴ USTR, 2016 USTR REPORT TO CONGRESS ON CHINA'S WTO COMPLIANCE 103-4 (2017); *see also* U.S. CHAMBER, *MADE IN CHINA 2025: GLOBAL AMBITIONS BUILT ON LOCAL PROTECTIONS* 26 (2017); EUROPEAN CHAMBER OF COMMERCE, *CHINA MANUFACTURING 2025* 15 (2017).

¹³⁵ U.S. CHAMBER, *MADE IN CHINA 2025: GLOBAL AMBITIONS BUILT ON LOCAL PROTECTIONS* 26 (2017).

¹³⁶ *Notice on Issuing the Shale Gas Development Plan (2011-2015)*, Sec. 5(1)2 (NDRC, MoF, MLR, NEA, Fa Gai Neng Yuan [2012] No. 612, issued Mar. 13, 2012).

¹³⁷ *See* Section I.C for an explanation of China's IDAR strategy and the concept of “introducing” technology from abroad.

¹³⁸ *Shale Gas Industry Policy*, art. 9 (NEA, 2013 Order No. 5, issued Oct. 22, 2013). The policy at art. 10 also encourages enterprises to participate in shale gas exploration and development through joint ventures.

¹³⁹ *Foreign Investment Catalogue*.

¹⁴⁰ INTERCHINA CONSULTING, *ESTABLISHMENT OF A JOINT VENTURE IN CHINA* 5 (June, 2011) (“Many foreign investors have discovered through hard found experience that one of the greatest exposures to IPR infringement is by having a Chinese partner.”); EUROPEAN COMM'N, *IMPACT ASSESSMENT REPORT ON THE EU-CHINA INVESTMENT RELATIONS*, SWD (2013) 185final 12 95-6 (May 23, 2013).

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absence of JV requirements. Most (52 percent) would have preferred a fully-owned business and 32 percent wanted a greater ownership stake in the JV than permitted.¹⁴¹

The risk of technology loss is exacerbated when the Chinese partner in the JV operation maintains other factories and workers that compete with the JV operation.¹⁴² The employees of the JV often are recruited from, or have ties to, the Chinese partner's existing operations.¹⁴³ Under these conditions, there is a considerable likelihood that the JV's technology and know-how will leak, either through "unintentional osmosis or through intentional diversion."¹⁴⁴ In contrast, a WFOE has more control over its operations and can sometimes minimize operational decisions that create technology risks.¹⁴⁵ Nevertheless, WFOEs also face various technology-related pressures from the Chinese government, as part of China's numerous administrative review and licensing processes, as described in more detail below.¹⁴⁶

In this investigation, the Intellectual Property Law Section of the American Bar Association noted that many U.S. companies—including American Superconductor Corporation (AMSC), Corning, DuPont, Eli Lilly, and General Motors—have sued for the misappropriation of trade secrets by JV partners, employees and others in Chinese courts.¹⁴⁷ The U.S. International Trade Commission also has been a frequent forum for U.S. companies asserting trade secret misappropriation claims based on conduct by JV partners and others in China, including SI Group, Fellowes, and Manitowoc Company.¹⁴⁸

In response to these concerns, defenders of China's technology transfer regime argue that China has opened its economy to foreign investment in several respects, such as the introduction of the "Negative List" system, in which foreign investment in all sectors is permitted unless it is expressly included on a negative list.¹⁴⁹ Despite these changes, substantial restrictions on foreign

¹⁴¹ EUROPEAN COMM'N, IMPACT ASSESSMENT REPORT ON THE EU-CHINA INVESTMENT RELATIONS, SWD (2013) 185final 12 13 (May 23, 2013).

¹⁴² OWEN D. NEE, JR., SHAREHOLDER AGREEMENTS AND JOINT VENTURES IN CHINA 583 (Thomson Reuters ed, 2016); *see also* INTERCHINA CONSULTING ESTABLISHMENT OF A JOINT VENTURE IN CHINA 5 (June, 2011); ITIF *Submission, Section 301 Hearing 10* (Oct. 25, 2017) (stating that, "[a]nother way China acquires technology and intellectual property is to steal it.").

¹⁴³ OWEN D. NEE, JR., SHAREHOLDER AGREEMENTS AND JOINT VENTURES IN CHINA 583 (Thomson Reuters ed, 2016).

¹⁴⁴ OWEN D. NEE, JR., SHAREHOLDER AGREEMENTS AND JOINT VENTURES IN CHINA 583 (Thomson Reuters ed, 2016).

¹⁴⁵ OWEN D. NEE, JR., SHAREHOLDER AGREEMENTS AND JOINT VENTURES IN CHINA 583 (Thomson Reuters ed, 2016).

¹⁴⁶ *See infra* Section II(C).

¹⁴⁷ AM. BAR ASS'N SECTION OF IP LAW [*hereinafter* "ABA Section"], *Submission, Section 301 Hearing 3* (Sept. 27, 2017). *See also* Daniel C.K. Chow, *Navigating the Minefield of Trade Secrets Protection in China*, 47 VAND. J. TRANSNAT'L L., 1007, 1009 (2014); Paul Ranjard, Benoit Misonne, *Study 12: Exploring China's IP Environment, in Study on the Future Opportunities and Challenges of EU-China Trade and Investment Relations 15* (2007). (describing a "common scenario" of IP violations by Chinese JV partners with competing JV businesses that use technology obtained from the foreign JV partner).

¹⁴⁸ ABA IP LAW SECTION, *Submission, Section 301 Hearing 3* (Sept. 27, 2017).

¹⁴⁹ *Opinions on the Implementation of the Market Access Negative List System* § 1(1), (State Council, Guo Fa [2015] No. 55, issued Oct. 2, 2015, effective from Dec. 1, 2015 to Dec. 31, 2017); CCOIC, *Submission, Section 301 Hearing 33* (Sept. 26, 2017); CHINA INTELLECTUAL PROPERTY LAW [*hereinafter* "CIPL"], *Submission, Section 301 Hearing 40* (Sept. 27, 2017).

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investment remain. First, China continues to use an approach that is fundamentally similar to previous versions of the *Foreign Investment Catalogue*, in which many “restricted” and “prohibited” investments are included under the “Negative List”.¹⁵⁰ During the period of this investigation, key sectors remain subject to JV and other investment restrictions.¹⁵¹ Moreover, even if China dropped its JV and other foreign ownership requirements, foreign investors would still continue to face pressures to transfer technology or disclose technical information through China’s licensing and administrative approvals regime (detailed in Section II.C, below).

2. Illustrative Examples of China’s Use of Investment Restrictions to Pressure Technology Transfer

While companies from the United States and other advanced economies have long faced JV requirements and other limits on control over their technologies in China, the most intensive technology transfer pressures often arise in sectors that align with the Chinese government’s industrial policy objectives. For example, studies commissioned by the European Commission have found that in key sectors, including machinery and environmental technologies, European companies have to enter into partnerships with Chinese state-owned enterprises (SOEs) and acquiesce to technology transfer demands to access the market or bid on government projects.¹⁵² Highlighted below for purposes of illustration are examples of technology transfer requirements or pressures imposed by the Chinese government in the automotive and aviation sectors.

a) Auto Manufacturing and New Energy Vehicles

When China initially opened the auto manufacturing sector to foreign investment, its goal was to use the transfer of technology from U.S. and other foreign auto makers to modernize SOEs in the sector.¹⁵³ To accomplish this goal, China has long required U.S. and other foreign car makers to enter into JVs where non-Chinese ownership is capped at 50 percent.¹⁵⁴

China’s strategy of leveraging the technology of foreign automakers through JV requirements to grow its indigenous innovation capability has been called the “Changan Model” by Chinese

¹⁵⁰ U.S. CHAMBER OF COMMERCE, *Submission, Section 301 Hearing 14* (Oct. 3, 2017) (China’s latest changes to its investment regime have provided, “...little in the way of comprehensive and meaningful openings to foreign investors.”).

¹⁵¹ See Appendix D.

¹⁵² Joachim Ihrcke, Krystina Becker, *Study 1: Machinery*, in *Study on the Future Opportunities and Challenges of EU-China Trade and Investment Relations* 33 (2007); Celine Louche, Angus Lambkin Pdraig Oliver, *Study 11: Sustainable Technologies and Services*, in *Study on the Future Opportunities and Challenges of EU-China Trade and Investment Relations* 66 (2007).

¹⁵³ 2015 U.S.-CHINA ECON. & SEC. REV. COMM’N ANN. REP. 84-5 (2015); KATHERINE KOLESKI, U.S.-CHINA ECON. & SEC. REV. COMM’N, CHINA’S 13TH FIVE-YEAR PLAN 153 (Feb. 14, 2017); see also USITC, INV. NO. 332-519, CHINA: EFFECTS OF INTELLECTUAL PROPERTY INFRINGEMENT AND INDIGENOUS INNOVATION POLICIES ON THE U.S. ECONOMY 5-33 (2011).

¹⁵⁴ 2015 U.S.-CHINA ECON. & SEC. REV. COMM’N ANN. REP. 84 (2015); KATHERINE KOLESKI, U.S.-CHINA ECON. & SEC. REV. COMM’N, CHINA’S 13TH FIVE-YEAR PLAN 153 (Feb. 14, 2017); see also USITC, INV. NO. 332-519, CHINA: EFFECTS OF INTELLECTUAL PROPERTY INFRINGEMENT AND INDIGENOUS INNOVATION POLICIES ON THE U.S. ECONOMY 5-33 (2011).

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government entities.¹⁵⁵ This model refers to the 50/50 JV entered into by a U.S. auto manufacturer and Chongqing Changan Automobile (Changan), a state-owned company ultimately controlled by the State-owned Assets Supervision and Administration Commission of the State Council (SASAC) through China South Industries Group.¹⁵⁶ A research division under the State Council lauded the “Changan Model” as an example of China’s Introduce, Digest, Absorb, Re-innovate (IDAR) approach¹⁵⁷ to technology development through the “introduction of technology and the digestion and re-innovation of technology.”¹⁵⁸ According to an article on the SASAC website, the model’s advantages include Changan’s control of the JV’s core production technology, the development of domestic innovation capabilities through control of that core technology, and the gradual upgrading of the domestic brand.¹⁵⁹

As China gained advanced auto manufacturing technology through JVs and sought to promote its own domestic brands, foreign automakers have found their industry placed in increasingly restrictive sections of the *Foreign Investment Catalogue*. Thus, the *Foreign Investment Catalogue* “encouraged” the “manufacturing of complete automobiles” until 2010, “permitted” it from 2011-2014, and “restricted” it in 2015, as China’s domestic capability grew.¹⁶⁰

Technology transfer pressures have intensified as China has sought to develop expertise in the manufacture of new energy vehicles (NEVs), which includes plug-in hybrids, electric batteries and fuel cell vehicles. The NEV sector was specifically targeted by the Chinese government in 2010 following the release by the State Council of the *Decision on Accelerating the Development of Strategic Emerging Industries*, which designated NEVs as one of the seven “strategic emerging industries” selected for accelerated development. In 2012, the State Council released the *Energy-Saving and New-Energy Automotive Industry Development Plan (2012-2020) (NEV Plan)*,¹⁶¹ which set forth an industrial development blueprint for NEVs calling for the

¹⁵⁵ “Changan Model” Radiates at the China Auto Industry Indigenous Innovation Summit [Chinese], SASAC, Nov. 7, 2006. <http://www.sasac.gov.cn/n2588025/n2588124/c3877435/content.html> (last visited Nov. 29, 2017).

¹⁵⁶ CHONGQING CHANGAN AUTOMOBILE CO., LTD. 2016 ANNUAL REPORT 42 [Chinese] (2016), available at <http://www.chinasouth.com.cn/1144.html> (last visited Dec. 2, 2017). China Southern Industries Group is a major Chinese arms manufacturer. SASAC is a part of the Chinese government, directly under the State Council, tasked with overseeing China’s SOEs.

¹⁵⁷ See Section I.C for an explanation of China’s IDAR strategy.

¹⁵⁸ *Development Research Center of the State Council: Changan Innovation Model Evokes Interest* [Chinese], CHINA ENTERPRISE CONFEDERATION / CHINA ENTERPRISE DIRECTORS ASSOCIATION, Nov. 14, 2006, available at http://info.cec-ceda.org.cn/jx/pages/20061114_32467_6_2.html (last visited Nov. 29, 2017).

¹⁵⁹ “Changan Model” Radiates at the China Auto Industry Indigenous Innovation Summit [Chinese], SASAC, Nov. 7, 2006, available at <http://www.sasac.gov.cn/n2588025/n2588124/c3877435/content.html> (last visited Nov. 29, 2017).

¹⁶⁰ See 2015 U.S.-CHINA ECON. & SEC. REV. COMM’N ANN. REP. 85 (2015). See also *Catalogue of Industries for Guiding Foreign Investment* (National Planning Commission, National Economic and Trade Commission, Ministry of Foreign Economics and Trade, Order No. 21, issued Mar. 4, 2002); *Catalogue of Industries for Guiding Foreign Investment* (amended 2004) (NDRC, MOFCOM Order No. 24, issued Nov. 30, 2004); *Catalogue of Industries for Guiding Foreign Investment* (amended 2007) (NDRC, MOFCOM Order No. 57, issued Oct. 31, 2007); *Catalogue of Industries for Guiding Foreign Investment* (amended 2011) (NDRC, MOFCOM Order No. 12, issued Dec. 24, 2011); *Catalogue of Industries for Guiding Foreign Investment* (amended 2015) (NDRC, MOFCOM Order No. 22, issued Mar. 10, 2015); *Catalogue of Industries for Guiding Foreign Investment* (amended 2017) (NDRC, MOFCOM, Order No. 4, issued June 28, 2017).

¹⁶¹ *Energy-Saving and New-Energy Automotive Industry Development Plan (2012-2020)* § 6(2)(2) (State Council, Guo Fa [2012] No. 22, issued June 28, 2012) [hereinafter “NEV Plan”].

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establishment of numerous regulations and subsidy programs to support domestic R&D, manufacturing, and utilization of NEVs. The *NEV Plan* sets a target of achieving cumulative production and sales volume of 5 million NEV units by 2020.¹⁶² A “basic principle” of the *NEV Plan* is to “expedite the formation of technology, standards, and brands using indigenous intellectual property.”¹⁶³ China’s focus on developing its domestic capacity to produce NEVs was recently reconfirmed with the sector’s inclusion in the *Made in China 2025 Key Area Technology Roadmap (Made in China 2025 Roadmap)*, which calls for, *inter alia*, indigenous NEVs to comprise 70 percent of domestic NEV sales by 2020 and 80 percent by 2025.¹⁶⁴

Foreign NEV producers seeking to sell their products in China face pressure to produce their automobiles in China with a JV partner rather than exporting them to China, due to a range of Chinese policies, including steep import tariffs¹⁶⁵ and subsidies available for domestically-produced NEVs,¹⁶⁶ as well as a new NEV credit system.¹⁶⁷ These pressures to produce NEVs locally work in tandem with China’s JV requirements to elicit the transfer of technology from foreign automakers to domestic Chinese automakers.

Specifically, market access rules issued in 2009 by the Ministry of Industry and Information Technology (MIIT), which applied to all enterprises that manufactured NEVs in China for use in China¹⁶⁸ and were a condition to be eligible for certain NEV preference programs,¹⁶⁹ required that NEV JVs hold intellectual property rights in one of three key NEV technologies: batteries, drive systems, or control systems.¹⁷⁰ In effect, this requirement forced foreign NEV

¹⁶² *NEV Plan* § 3(2.1).

¹⁶³ *NEV Plan* § 2(2).

¹⁶⁴ *Made in China 2025 Key Area Technology Roadmap* (National Strategic Advisory Committee on Building a Powerful Manufacturing Nation, issued Oct. 2015).

¹⁶⁵ Imported passenger vehicles are generally subject to a 25 percent tariff rate. *See Customs Import and Export Tariff of the People’s Republic of China* (2017).

¹⁶⁶ The Chinese government provides subsidies to NEV manufacturers in connection with their sales of NEVs to consumers in China. In the current phase of the program, the central government subsidy amount is based primarily upon vehicle range and is capped at CNY 44,000 (\$6,500) per vehicle. In addition, local governments are allowed to offer a subsidy of up to 50 percent of the value of the central government subsidy. *Notice on Adjusting Fiscal Subsidy Policies for Promoting the Expanded Use of NEVs* (MOF, MOST, MIIT, NDRC, Cai Jian [2016] No. 958, Dec. 30, 2016). Eligibility requirements for these subsidies are described below in more detail.

¹⁶⁷ The NEV credit system requires all automakers selling vehicles in China to generate, by 2018, a certain portion of their production and imports from NEVs in order to generate “NEV credits” or be subject to penalties. *See Provisional Measures for Administration of the NEV Fuel Use and Credit System*, art 36 (MIIT, MOF, MOFCOM, General Administration of Customs, and General Administration of Quality Supervision, Inspection and Quarantine, 2017 Order No. 44, issued Sept. 27, 2017, effective Apr. 1, 2018); *see also* ITIF, *Submission, Section 301 Hearing 6* (Oct. 25, 2017).

¹⁶⁸ *Provisions on the Administration of Access for New Energy Vehicle Manufacturers and Products*, art. 2 (MIIT, [2009] Order No. 44, effective July 1, 2009).

¹⁶⁹ NEV models that satisfy the market access rules were published in a catalogue. *See Provisions on the Administration of Access for New Energy Vehicle Manufacturers and Products*, art. 8 (MIIT, [2009] Order No. 44, effective July 1, 2009). Only NEV models listed in the catalogue were eligible for certain subsidies. *See Notice on Developing Energy Efficient and New Energy Vehicle Demo Promotion Pilot Work* § 3, art. 7(1) (MOST, MOF, Cai Jian [2009] No. 6, issued Jan. 23, 2009). *See also Notice on New Energy Vehicle Expanded Use Fiscal Support Policies for 2016-2020* § 1(2) (MOF, MOST, MIIT, NDRC, Cai Jian [2015] No. 134, issued Apr. 22, 2015).

¹⁷⁰ *Provisions on the Administration of Access for New Energy Vehicle Manufacturers and Products* (MIIT, [2009] Order No. 44, effective July 1, 2009), Appendix 2, Requirement 5 required the NEV manufacturer “possess intellectual property (at least rights to make design changes or usage rights) for the mastered core technology.” *See*

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manufacturers to transfer their valuable technologies to the NEV JV, which they do not control, in order to gain market access.¹⁷¹

The pressure on NEV manufacturers to transfer core NEV technology to their JVs in China has intensified over the last year. New market access rules issued by MIIT in 2017, which also apply to all enterprises that manufacture NEVs in China for use in China¹⁷² and are a condition to be eligible for certain NEV preference programs,¹⁷³ impose an even more onerous standard. These rules require that NEV manufacturers “master” the development and manufacturing technology for a complete NEV, rather than just one of the three key technologies listed in the 2009 market access rules, and possess key R&D capacities.¹⁷⁴ As foreign automaker investment in China must be through a JV in which the foreign company holds no more than 50 percent equity, the foreign automaker effectively must transfer a high degree of key technologies and components to the JV in order for the JV to acquire mastery of the manufacturing process, including electronic and electrical control systems, on-board energy systems, powertrains, and dynamic coupling equipment.¹⁷⁵

Several submissions from U.S. trade associations pointed to China's NEV rules as evidence of China's unfair technology transfer regime, with one trade association stating in hearing testimony that China's NEV rules present “a clear case in the electric vehicle sector that you're simply not going to be able to sell that product in China unless that local partner has mastered the ability to leverage the technology and take it to produce it going forth.”¹⁷⁶

also TAI MING CHEUNG ET AL., U.S.-CHINA ECON. & SEC. REV. COMM'N, PLANNING FOR INNOVATION: UNDERSTANDING CHINA'S PLANS FOR TECHNOLOGICAL, ENERGY, INDUSTRIAL AND DEFENSE DEVELOPMENT 235-6 (2016); U.S. CHAMBER, *Submission, Section 301 Hearing* 16 (Oct. 3, 2017). *See also* Keith Bradsher, *Hybrid in a trade squeeze*, NEW YORK TIMES, Sept. 6, 2011 (reporting that the Chinese government was refusing to let GM's electric vehicle, the Chevrolet Volt, qualify for certain subsidies unless GM agreed to transfer the technology for “one of the Volt's three main technologies” (electric motors, electronic controls, or power storage) to a JV in China. These subsidies were reportedly “crucial” for allowing electric vehicles to sell in meaningful quantities.); Ben Klayman, *GM, SAIC to develop electric vehicles in China*, REUTERS, Sept. 20, 2011 (reporting that GM and its Chinese partner SAIC Motor Corp signed an agreement that they would build electric vehicles that would qualify for subsidies, noting that as the Volt was not built in China, it did not qualify for them).

¹⁷¹ TAI MING CHEUNG ET AL., U.S.-CHINA ECON. & SEC. REV. COMM'N, PLANNING FOR INNOVATION: UNDERSTANDING CHINA'S PLANS FOR TECHNOLOGICAL, ENERGY, INDUSTRIAL AND DEFENSE DEVELOPMENT 236 (2016) (citing Sabrina Howell, Henry Lee, & Adam Heal, HARVARD KENNEDY SCHOOL BELFER CENTER, LEAPFROGGING OR STALLING OUT? ELECTRIC VEHICLES IN CHINA (May 2014)).

¹⁷² *Provisions on the Administration of Access for New Energy Vehicle Manufacturers and Products*, art. 2 (MIIT [2017] Order No. 39, effective July 1, 2017).

¹⁷³ As with the 2009 rules, NEV models that satisfy the market access rules are published in a catalogue and only those NEV models listed in the catalogue are eligible for certain subsidies. *Provisions on the Administration of Access for New Energy Vehicle Manufacturers and Products*, art. 14 (MIIT, [2017] Order No. 39, effective July 1, 2017); *Notice on New Energy Vehicle Expanded Use Fiscal Support Policies for 2016-2020* § 1(2) (MOF, MOST, MIIT, NDRC, Cai Jian [2015] No. 134, issued Apr. 22, 2015).

¹⁷⁴ *Provisions on the Administration of Access for New Energy Vehicle Manufacturers and Products*, art. 5(3), app. 1 (MIIT, [2017] Order No. 39, effective July 1, 2017); *see also* U.S. CHAMBER, *Submission, Section 301 Hearing* 16 (Oct. 3, 2017).

¹⁷⁵ *Provisions on the Administration of Access for New Energy Vehicle Manufacturers and Products*, art. 5(3), app. 1 (MIIT, [2017] Order No. 39, effective July 1, 2017).

¹⁷⁶ Stephen Ezell, ITIF, *Testimony, Section 301 Hearing* 38-39 (Oct. 10, 2017); *see also* U.S. CHAMBER, *Submission* 16 (Oct. 3, 2017); U.S. CHAMBER, *MADE IN CHINA 2025: GLOBAL AMBITIONS BUILT ON LOCAL PROTECTIONS* 27 (2017).

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b) Aviation

The state is the dominant force on the demand-side in many industries in China, both through direct purchases made by the central and local governments and through purchases made by SOEs, which account for a large share of purchasing decisions.¹⁷⁷ According to one hearing participant, “often an implicit part of the deal of whether or not a company has its product or good chosen and purchased is [whether] there’s going to be a transfer of technology concomitant with that sale.”¹⁷⁸ Similarly, AmCham China’s 2013 White Paper on Civil Aviation states “many US companies possess intellectual property (IP) that serves as their source of competitiveness and profitability, yet they are sometimes required (implicitly or explicitly) to transfer such IP to their JV partners”.¹⁷⁹ In the aviation industry, China uses its purchasing power to require JVs and technology transfer in exchange for two types of business opportunities—the sale of commercial aircraft to China’s state-owned airlines and the sale of aircraft components to Chinese-made aircraft.

The fact that China’s three largest airlines – AirChina, China Eastern, and China Southern – are all state-owned and account for the vast majority of aircraft purchases provides the Chinese government with a significant degree of leverage over foreign aircraft makers.¹⁸⁰ Purchases of commercial aircraft by China’s state-owned airlines require approval by the Chinese government.¹⁸¹ According to industry experts and participants, China uses its leverage to maintain a balance between purchases of foreign aircraft¹⁸² and to pressure them to form JVs with Chinese companies and localize production.¹⁸³ China is effectively able to exert this pressure over aircraft manufacturers because of the size of China’s commercial aircraft

¹⁷⁷ The European Chamber of Commerce in China in 2011 estimated that China’s government procurement market including SOEs ranges from 12 percent to 20percent of China’s GDP. EU CHAMBER OF COMMERCE IN CHINA, PUBLIC PROCUREMENT IN CHINA: EUROPEAN BUSINESS EXPERIENCES COMPETING FOR PUBLIC CONTRACTS IN CHINA 16 (Apr. 2011).

¹⁷⁸ Stephen Ezell, ITIF, *Testimony, Section 301 Hearing* 38 (Oct. 10, 2017).

¹⁷⁹ AMCHAM CHINA 2013 WHITE PAPER 188 (2012).

¹⁸⁰ See KEITH CRANE, ET AL., RAND, THE EFFECTIVENESS OF CHINA’S INDUSTRIAL POLICIES IN COMMERCIAL AVIATION MANUFACTURING 27 (2014).

¹⁸¹ See e.g., CAAC Notice Regarding the Report on Civil Aviation System Management System Reform, (State Council Guo Fa [1985] No. 3, Issued Dec. 3, 1984). See also Yan Yan, *Secrets of “Elderly” Aircraft*, PEOPLE’S DAILY, Apr. 6, 2015, http://paper.people.com.cn/gjrb/html/2015-04/06/content_1550497.htm (last visited Dec. 8, 2017) for a description of the government approval process for purchasing and leasing aircraft in China.

¹⁸² This problem has been widely discussed in industry and government fora, including in two reports commissioned by the U.S.-China Economic and Security Review Commission which explain how the Chinese government leverages purchases of aircraft in exchange for agreements that it hopes will lead to technology transfers into China’s aviation industry. See, e.g., KEITH CRANE, ET AL., RAND, THE EFFECTIVENESS OF CHINA’S INDUSTRIAL POLICIES IN COMMERCIAL AVIATION MANUFACTURING (2014); ROGER CLIFF, CHAD J. R. OHLANDT, DAVID YANG, RAND, READY FOR TAKEOFF: CHINA’S ADVANCING AEROSPACE INDUSTRY 38 (Mar. 2011).

¹⁸³ Owen Herrstadt, INT’L ASS’N OF MACHINISTS & AEROSPACE WORKERS (*hereinafter* “IAM”), *Testimony, Section 301 Hearing* 28-9 (Oct. 10, 2017); KEITH CRANE, ET AL., RAND, THE EFFECTIVENESS OF CHINA’S INDUSTRIAL POLICIES IN COMMERCIAL AVIATION MANUFACTURING 29 (2014); *The Impact of International Technology Transfer on American Research and Development: Hearing Before the House Committee on Science, Space, and Technology, Subcommittee on Investigations and Oversight*, 112th Cong. 8 (2012) (Statement of Robert D. Atkinson).

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market,¹⁸⁴ coupled with required government approvals of aircraft purchases by state-owned airlines, and fierce competition for a limited number of government-approved sales.

China similarly uses its purchasing power to foster the development of a domestic supply chain for Chinese-made aircraft, particularly the C919, which will be China's first "homegrown" large commercial aircraft.¹⁸⁵ Industry observers have described the purchase order process for the C919 as "state directed," "coerced," and "choreographed" by the central government.¹⁸⁶ Within this process, JVs are used as a key mechanism for obtaining the technology needed to support the development of a domestic supply chain for Chinese-made aircraft:

Chinese government officials have clearly communicated to foreign firms in the commercial aviation manufacturing industry that their business in China would be much more likely to enjoy success if they are seen as a "friend of China." Companies can demonstrate this by setting up local production facilities, bringing in technologies, or participating in the C919 project...¹⁸⁷

Specifically, the Commercial Aircraft Corporation of China (COMAC), a centrally-controlled SOE,¹⁸⁸ has made clear that foreign suppliers to the C919 program must enter into JVs with Chinese suppliers to participate in tenders for key components and systems.¹⁸⁹ This pressure is particularly prevalent in tenders for high-tech functions where Chinese capabilities are lagging,

¹⁸⁴ The International Air Transport Association estimates that China's aviation market will reach 1.3 billion passengers by 2035, compared to only 1.1 billion in the U.S. market. Based on these projections, some estimates predict that Chinese airlines will need to purchase 6,810 aircraft worth more than \$1 trillion by 2035. Press Release, International Air Transport Association, IATA Forecasts Passenger Demand to Double Over 20 Years (Oct. 18, 2016); *Boeing lifts long-term outlook for China plane demand to \$1 trillion*, REUTERS (Sept. 13, 2016).

¹⁸⁵ This problem has been widely discussed in industry and government fora, including in two reports commissioned by the U.S.-China Economic and Security Review Commission which explain how the Chinese government leverages purchases of aircraft in exchange for agreements that it hopes will lead to technology transfers into China's aviation industry. See, e.g., KEITH CRANE, ET AL., RAND, THE EFFECTIVENESS OF CHINA'S INDUSTRIAL POLICIES IN COMMERCIAL AVIATION MANUFACTURING (2014); ROGER CLIFF, CHAD J. R. OHLANDT, DAVID YANG, RAND, READY FOR TAKEOFF: CHINA'S ADVANCING AEROSPACE INDUSTRY 38 (Mar. 2011).

¹⁸⁶ Steve Wilhelm, *Mighty 737 Has Rivals on its Tail—and not Just Airbus*, PUGET SOUND BUSINESS JOURNAL, Aug. 17, 2012; *The Enduring Jetliner Duopoly*, AEROSPACE AMERICA, Oct. 2012; *C919 May Suffer Order Bottleneck over Next 4 Yrs*, SINOCAST, Sept. 20, 2012; *National Priority: COMAC Is Behind Schedule on C919 Supplier Selection, but Has State Directed Orders in the Bag*, AVIATION WEEK & SPACE TECHNOLOGY, June 28, 2010; Alexey Komarov, Michael A. Taverna, *Growing Pains*, AVIATION WEEK & SPACE TECHNOLOGY, Nov. 22, 2010.

¹⁸⁷ KEITH CRANE, ET AL., RAND, THE EFFECTIVENESS OF CHINA'S INDUSTRIAL POLICIES IN COMMERCIAL AVIATION MANUFACTURING 31 (2014).

¹⁸⁸ See *List of Central Enterprises* [Chinese], ASSET SUPERVISION AND ADMINISTRATION COMMISSION OF THE CHINESE STATE COUNCIL, available at <http://www.sasac.gov.cn/n2588035/n2641579/n2641645/index.html> (last visited Jan. 7, 2018).

¹⁸⁹ *Why the "Main Manufacturer – Supplier" Model* [Chinese], COMMERCIAL AIRCRAFT CORPORATION OF CHINA (COMAC) (June 24, 2013), http://www.comac.cc/xw/mtjj/201306/24/t20130624_941203.shtml (last visited Dec. 11, 2017) ("As a result [of the drive to develop domestic industry], during the supplier bidding process, COMAC has explicitly put forward that for five systems including avionics, it seeks technological advancements, and at the same time, requires the establishment of joint ventures with domestic suppliers, build-out of R&D, integration, production and assembly, and testing capabilities for system-level products, as well as the formation of a complete set of batch-production and customer service capabilities. Concurrently, [COMAC] has supported the participation of domestic suppliers in system-level and equipment-level R&D cooperation, and encouraged domestic enterprises and institutions to cooperate with foreign suppliers in the form of subcontracted production, to participate in research and procurement projects for other large aircraft systems and equipment.").

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such as advanced materials and flight control systems.¹⁹⁰ A 2015 press statement issued by COMAC explains that it selected sixteen leading international suppliers and it pushed for these suppliers to partner with domestic enterprises to develop key technologies for the C919. As a result, these sixteen JVs have “improved the overall level of China’s aerospace R&D and manufacturing through technology transfer, diffusion, and spillover.”¹⁹¹

AmCham China’s 2012 White Paper on Civil Aviation makes clear how China’s technology transfer regime puts pressure on U.S. aviation companies:

Indigenous innovation industrial policy in the aerospace sector is forcing US companies to form joint ventures (JV) or localize manufacturing in order to participate in domestic aircraft programs such as the C919. Rather than being market-driven, these JVs are often with the Aviation Industry Corporation of China (AVIC) or COMAC designated partners... Additionally, many US companies possess intellectual property that serves as the source of their competitiveness and profitability, yet they are being forced to transfer their intellectual property in order to participate in this sector. It is challenging enough for companies to manage a successful JV when they choose their own JV partner. When JV partners are designated by an outside party, the difficulty of running a successful JV increases further.¹⁹²

In this investigation, the International Association of Machinists and Aerospace Workers (IAM) criticized U.S. aviation companies for responding to this pressure by transferring certain technologies and production to China.¹⁹³ Other submissions stated, however, that aviation companies face few realistic alternatives; even if U.S. companies did not accede, those from other countries would do so to and gain a critical competitive advantage.¹⁹⁴ Another submission put the matter more starkly:

[A] ‘voluntary’ technology transfer takes place, but one that is only voluntary in the sense that the business transactions engaged in by the fictional gangster of the *Godfather* series, Vito Corleone, were voluntary. China is effectively making an offer multinationals cannot refuse. Once Chinese producers are able to produce commercial aircraft, the state-owned airlines can be induced to buy them, even if they lag multinational products in terms of reliability or performance. Shut out of the world’s largest market for their product, multinational players are forced to shrink, export opportunities are lost, and the leading firms have fewer resources to invest in the next generation of products.”¹⁹⁵

C. Administrative Review and Licensing Processes as Used in China’s Technology Transfer Regime

¹⁹⁰ KEITH CRANE, ET AL, RAND, THE EFFECTIVENESS OF CHINA’S INDUSTRIAL POLICIES IN COMMERCIAL AVIATION MANUFACTURING at 31 (2014).

¹⁹¹ *The C919 First Large Passenger Plane Comes Off General Assembly Line, Xi Jinping Issues Important Directive, Premier Li Keqiang Issues Comments, Ma Kai and Han Zheng Attend the Ceremony* [Chinese] COMAC (Nov. 2, 2015), http://www.comac.cc/xwzx/gsxw/201511/02/t20151102_3031037.shtml (last visited Dec. 11, 2017).

¹⁹² AMCHAM CHINA 2012 WHITE PAPER 190 (2012).

¹⁹³ IAM, *Submission, Section 301 Hearing 1* (Sept. 29, 2017).

¹⁹⁴ Lewis, *Submission, Section 301 Hearing 3* (Sept. 27, 2017).

¹⁹⁵ Lee Branstetter, *Submission, Section 301 Hearing 2* (Sept. 28, 2017).

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China also uses its administrative review and licensing processes to force the disclosure of sensitive technical information and to achieve its technology transfer objectives. China maintains numerous administrative review and licensing processes that companies must comply with before establishing or expanding operations, or offering products or services in the China market.¹⁹⁶ These review and licensing processes, which occur in agencies at the central, provincial, and municipal levels, often are used as an opportunity to require technology transfer.¹⁹⁷ Vaguely worded provisions and uncertainty about the applicable rules provide Chinese authorities with wide discretion to use administrative processes to pressure technology transfer, restrict investments to protect domestic competitors, or otherwise act in furtherance of industrial policy objectives.¹⁹⁸

1. Technology Transfer Pressure in Administrative Approvals and Licensing

Foreign investment in China requires obtaining numerous government approvals depending on the terms of the investment and the industry and location in which the investment occurs. For instance, a foreign investment may be required to obtain (1) investment approval from the Ministry of Commerce (MOFCOM) or its local counterpart, (2) project approval from the National Development and Reform Commission (NDRC), its local counterpart, or the State Council, (3) national security and (4) anti-monopoly approval by MOFCOM, and (5) local approvals for site-related requirements.¹⁹⁹

At each stage of the approval process, vaguely worded provisions provide government officials with significant discretion to impose technology transfer requirements. For example, China's regulations governing JVs expressly state that equity joint ventures should raise China's level of science and technology.²⁰⁰ Moreover, China's JV regulations stipulate that MOFCOM in conducting its approval review of an EJV or CJV must consider *inter alia* whether the

¹⁹⁶ USCBC, UPDATE: LICENSING CHALLENGES AND BEST PRACTICES IN CHINA 2 (Jan. 2014).

¹⁹⁷ USCBC, *Submission, Section 301 Hearing 4* (Sept. 28, 2017); U.S. CHAMBER, *Submission, Section 301 Hearing 17* (Oct. 3, 2017) (misuse of administrative license procedures provides the opportunity for a company's trade secrets to be put at risk of unnecessary disclosure); U.S. DEP'T OF STATE, INVESTMENT CLIMATE STATEMENT 6 (2017); Covington & Burling LLP, *Measures and Practices Restraining Foreign Investment in China*, prepared for the European Commission Directorate-General for Trade 65 (Aug. 2014).

¹⁹⁸ USCBC, *Submission, Section 301 Hearing 4* (Sept. 28, 2017); U.S. CHAMBER, *Submission, Section 301 Hearing 17* (Oct. 3, 2017) (misuse of administrative license procedures provides the opportunity for a company's trade secrets to be put at risk of unnecessary disclosure); U.S. DEP'T OF STATE, INVESTMENT CLIMATE STATEMENT 6 (2017); Covington & Burling LLP, *Measures and Practices Restraining Foreign Investment in China*, prepared for the European Commission Directorate-General for Trade 65 (Aug. 2014); U.S. CHAMBER, MADE IN CHINA 2025: GLOBAL AMBITIONS BUILT ON LOCAL PROTECTIONS 27-29, 33 (2017).

¹⁹⁹ See generally U.S. CHAMBER OF COMMERCE, CHINA'S APPROVAL PROCESS FOR INBOUND FOREIGN INVESTMENT: IMPACT ON MARKET ACCESS, NATIONAL TREATMENT AND TRANSPARENCY (Nov. 2012); see also JAMES M. ZIMMERMAN, CHINA LAW DESKBOOK (4th ed. 2014). In 2016, some MOFCOM approvals were replaced with a record filing requirement, but MOFCOM approval is still required for those industries listed on the Negative List, and all FIEs are still subject to national security or anti-monopoly reviews where applicable.

²⁰⁰ *Regulations for the Implementation of the Law of the People's Republic of China on Chinese-Foreign Equity Joint Ventures*, art. 3 (State Council, Guo Fa [1983] No. 148, issued Sep. 20, 1983, effective Sep. 20, 1983, amended Jan. 15, 1986, in Guo Fa [1986] No. 6, further amended Dec. 21, 1987, in Guo Fa [1987] No. 110, Jul. 22, 2001, in Order of the State Council No. 311, Jan. 8, 2011, in Order of the State Council No. 588, and Feb. 19, 2014, in Order of the State Council No. 648).

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investment is consistent with China's national economic development needs or industrial policy goals, respectively.²⁰¹

In addition, China imposes administrative licensing²⁰² requirements on more than 100 different business activities, such as food and drug production, mining, or telecommunications services, for all enterprises in China.²⁰³ Even if a foreign investment in a particular industry is technically permitted, a foreign invested enterprise (FIE) must still obtain an industry-specific license in order to conduct these activities.²⁰⁴ The specific requirements and approval timelines vary widely depending on the industry at issue. For heavily regulated industries, the industry regulator review process can take more than a year.²⁰⁵

The US Chamber of Commerce has highlighted how the Chinese government uses its discretion in the review process to apply vague and unwritten rules in a selective and non-transparent manner:

The relatively opaque nature of the inbound FDI approval processes enables China's investment approval authorities to favor domestic competitors over foreign investors, should they so desire, without leaving a paper trail of discriminatory written regulations that could clearly offend WTO obligations. Foreign investors have reported this favoritism occurring in two ways: (i) through the application of vaguely worded or unpublished rules or requirements in ways that discriminate against foreign investors; and (ii) through the imposition of deal-specific conditions that go beyond any written legal requirements.²⁰⁶

In one investigation submission, a former in-house counsel reported similar practices from his time doing business in China:

[T]here is a very clear discretionary administrative approval processes and other restrictions adopted by the Government of China that pressure the transfer of intellectual property to Chinese companies and/or to Chinese State Owned Enterprises in order to 'do business' in China and receive required licensing approvals. Often the language in Chinese licensing and business registration forms may not be clear as to its required and mandatory expectation for technology transfer by U.S. companies to Chinese firms or state agencies, but licensing officials within regional Chinese centers clarify in person, what is expected, without providing written documents that could be subsequently shared

²⁰¹ *Regulations for the Implementation of the Law of the People's Republic of China on Chinese-Foreign Equity Joint Ventures*, art. 4; *Rules for the Implementation of the Law of the People's Republic of China on Chinese-Foreign Contractual Joint Ventures*, art. 9 (Order of the State Council, issued September 4, 1995, last amended March 1, 2017); see also JAMES M. ZIMMERMAN, CHINA LAW DESKBOOK 147 (4th ed. 2014).

²⁰² The Chinese term *xuke zheng* is often translated as "license" or "permit".

²⁰³ U.S. CHAMBER OF COMMERCE, CHINA'S APPROVAL PROCESS FOR INBOUND FOREIGN INVESTMENT: IMPACT ON MARKET ACCESS, NATIONAL TREATMENT AND TRANSPARENCY 17 (Nov. 2012).

²⁰⁴ U.S. CHAMBER OF COMMERCE, CHINA'S APPROVAL PROCESS FOR INBOUND FOREIGN INVESTMENT: IMPACT ON MARKET ACCESS, NATIONAL TREATMENT AND TRANSPARENCY 18 (Nov. 2012).

²⁰⁵ U.S. CHAMBER OF COMMERCE, CHINA'S APPROVAL PROCESS FOR INBOUND FOREIGN INVESTMENT: IMPACT ON MARKET ACCESS, NATIONAL TREATMENT AND TRANSPARENCY 18 (Nov. 2012).

²⁰⁶ U.S. CHAMBER OF COMMERCE, CHINA'S APPROVAL PROCESS FOR INBOUND FOREIGN INVESTMENT: IMPACT ON MARKET ACCESS, NATIONAL TREATMENT AND TRANSPARENCY 35-36 (Nov. 2012).

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with global trade organizations. So a carefully crafted and structured process has been developed to avoid obvious demands for U.S. technology.²⁰⁷

The administrative licensing and approvals process can also work in tandem with the JV requirements described above to require or pressure technology transfer. A study conducted by the U.S. Chamber of Commerce concluded:

The [JV requirement] creates numerous circumstances where investment approval authorities are able to work in a nontransparent way with the local partner to ensure that valuable intellectual property, market channels, and other assets of the foreign investor are made available to the joint venture — often on extremely favorable commercial terms for the local partner. This problem is exacerbated by the fact that in Sino-foreign joint ventures, the local partner serves as the investment approval process applicant on behalf of the prospective joint venture. As a result, Chinese joint venture partners are able, in many cases, to control the communication channels between the foreign investor and the government approval authorities, making the process even more opaque for the foreign investor and enabling the local partner to shape the approval requirement imposed by the authorities to its advantage.²⁰⁸

Problems with administrative licensing processes are consistently identified as top concerns in annual surveys of U.S. companies in China.²⁰⁹ According to the most recent USCBC member survey, for example, companies specifically ranked “obtaining licenses and approvals” and “investment barriers” as the second and third greatest challenges, respectively.²¹⁰ Moreover, 65 percent of respondent companies experienced problems obtaining necessary licenses and approvals in China. According to the survey, these licensing problems occurred overwhelmingly at the central government level (80 percent) and almost three-fourths of respondents report that China’s licensing reforms have had no impact to date.²¹¹ Similarly, in each of AmCham China’s 2017 and 2018 annual surveys, U.S. companies ranked China’s inconsistent regulatory interpretations as a top challenge.²¹² Companies also repeatedly identified “difficulty in obtaining required licenses” as a top challenge.²¹³

As one legal treatise on foreign investment in China explains:

Even under the existing laws, where approvals are required for foreign investment, it is not unusual to experience a situation where the Catalogue on Guiding Foreign Investment may provide that a certain activity may be conducted by a WFOE, [while] the Chinese

²⁰⁷ Stephen Zirschky, *Submission, Section 301 Hearing* (Sept. 28, 2017).

²⁰⁸ U.S. CHAMBER OF COMMERCE, CHINA’S APPROVAL PROCESS FOR INBOUND FOREIGN INVESTMENT: IMPACT ON MARKET ACCESS, NATIONAL TREATMENT AND TRANSPARENCY 38-39 (Nov. 2012).

²⁰⁹ AMCHAM CHINA, 2016 AMCHAM CHINA WHITE PAPER: AMERICAN BUSINESS IN CHINA 8 (2016); USCBC, UPDATE: LICENSING CHALLENGES AND BEST PRACTICES IN CHINA 1 (Apr. 2016).

²¹⁰ USCBC, 2017 MEMBER SURVEY 2 (2017).

²¹¹ USCBC, 2017 MEMBER SURVEY 12 (2017).

²¹² AMCHAM CHINA, 2017 CHINA BUSINESS CLIMATE SURVEY REPORT 28 (2017); AMCHAM CHINA, 2018 CHINA BUSINESS CLIMATE SURVEY REPORT 40 (2018).

²¹³ AMCHAM CHINA, 2017 CHINA BUSINESS CLIMATE SURVEY REPORT 28 (2017); AMCHAM CHINA, 2018 CHINA BUSINESS CLIMATE SURVEY REPORT 40 (2018).

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authorities openly state that a WFOE will never be approved—only a joint venture, and only if all material technology is transferred to the joint venture.²¹⁴

ITIF's submission in this investigation provides further example of how China's administrative authorities pressure foreign investors' decisions on technology and R&D localization:

The CEO of a large multinational telecommunications equipment company recently shared with ITIF that he opened up a large R&D facility in Beijing that employs over 500 scientists and engineers. When asked if he did this to access Chinese engineering talent, he responded bluntly: “Unless I promised the Chinese Government that I would open up an advanced technology lab there, I was told that I would not be able to sell to the Chinese telecommunications providers,” (most of which are de facto controlled by the Chinese government).²¹⁵

As described above, discretion in China's administrative licensing process can be used to require technology transfer or impose deal-specific conditions in exchange for the licenses necessary for a foreign investor to operate in China. Similarly, ambiguity in the administrative licensing and approvals process may also result in technology transfer where existing laws and regulations are unclear as to the relevant requirements for foreign investors—this problem is particularly acute in new and emerging industries.

As one submission noted:

“[U]ncertainty surrounding administrative licensing regulations can also serve as a *de facto* limit for companies hoping to move into certain sectors. Businesses are often particularly cautious about advancing into new and under-regulated business sectors such as telemedicine, fearing that they might find themselves in violation of new regulations after investing.”²¹⁶

These violations may lead to technology transfer in circumstances where foreign-invested enterprises must quickly comply with new regulations (or new interpretations of existing regulations) that threaten to shut down their existing business in China. According to numerous submissions in this investigation, an important example of how ambiguity in China's administrative licensing process is used to pressure technology transfer arises in the field of cloud computing.²¹⁷

Cloud Computing

²¹⁴ OWEN D. NEE, JR., *SHAREHOLDER AGREEMENTS AND JOINT VENTURES IN CHINA* 57 (Thomson Reuters ed, 2016). The authors further conclude that even if China does adopt a Negative List approach, “it is doubtful that a [negative list] will effectively abolish such internal regulations or “neibu wenjian.”

²¹⁵ ITIF, *Submission, Section 301 Hearing* 6 (Oct. 25, 2017).

²¹⁶ USCBC, *Follow-Up Submission, Section 301 Hearing* 4-5 (Oct. 30, 2017).

²¹⁷ CONSUMER TECHNOLOGY ASS'N [hereinafter “CTA”], *Submission, Section 301 Hearing* 10 (Sept. 28, 2017); COMPTIA, *Submission, Section 301 Hearing* 4 (Sept. 28, 2017); INFORMATION TECHNOLOGY INDUSTRY COUNCIL [hereinafter “ITI”], *Submission, Section 301 Hearing* 3-4 (Sept. 28, 2017); COALITION OF SERVICES INDUSTRIES, *Submission Section 301 Hearing* 2 (Sept. 28, 2017); *see generally* TELECOMMUNICATIONS INDUSTRY ASS'N, *Submission, Section 301 Hearing* (Sept. 28, 2017).

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China has prioritized the development of its cloud computing sector and seeks to raise its indigenous cloud computing capability and achieve “systematic breakthroughs” in “indigenously innovated core technology” by 2020.²¹⁸ Submissions in this investigation raised concerns with China’s restrictions on foreign investment, and related licensing practices and policies in this field.²¹⁹ These submissions indicate that the Chinese government has used regulatory ambiguity to benefit Chinese cloud computing businesses and pressure technology transfer. China first tacitly permitted foreign investors to partner with licensed Chinese cloud service providers in order to gain market access, and then, once key technology and know-how had been injected into these partnerships, China resolved the regulatory ambiguities that had necessitated these arrangements in favor of the Chinese partner, resulting in the transfer of technology to the Chinese partner.

China precludes U.S. cloud service providers (CSPs) from directly participating in the three most common forms of cloud computing: computing infrastructure as a service (IaaS); computer platform as a service (PaaS); and computer software as a service (SaaS).²²⁰ CSPs must obtain certain value-added telecommunication licenses, such as an internet data center (IDC) license, from China’s MIIT or its local counterpart to operate their businesses.²²¹ According to numerous submissions in this investigation, in practice, China does not grant such licenses to U.S. investors and thus does not permit U.S. CSPs to provide cloud computing services directly to customers in China.²²²

However, the global nature of cloud computing means that forgoing the China market is simply not a commercially viable option for U.S. CSPs, whose customers demand globally available services.²²³ This is particularly the case for technology companies that have invested in and built up a market share in China in areas that are rapidly transitioning to cloud-based delivery. Thus, a business built on managing a customer’s computing resources, or supplying and maintaining software applications has little option but to offer those services on a cloud basis, given the economic, technical and security superiority of the cloud model, the transition to which customers now demand.

²¹⁸ *Notice on Issuing 13th Five-year Plan for National Informatization*, Sec. 2(3) (State Council, Guo Fa [2016] No. 73, issued Dec. 15, 2016). In addition, the plan states that by 2020, China should have “basically established a secure and controllable IT industry ecosystem”, and asserts that “digitization comprehensively underpins the development of Party and national government initiatives.”

²¹⁹ CTA, *Submission, Section 301 Hearing 10* (Sept. 28, 2017); COMPTIA, *Submission, Section 301 Hearing 4* (Sept. 28, 2017); ITI, *Submission, Section 301 Hearing 3-4* (Sept. 28, 2017); U.S. CHAMBER OF COMMERCE, *Submission, Section 301 Hearing 18-19* (Oct. 3, 2017); see generally TELECOMMUNICATIONS INDUSTRY ASS’N [*hereinafter* “TIA”], *Submission, Section 301 Hearing* (Sept. 28, 2017).

²²⁰ U.S. companies are global leaders in these sectors. USITC, *GLOBAL DIGITAL TRADE 1: MARKET OPPORTUNITIES AND KEY FOREIGN TRADE RESTRICTIONS 19-20* (Aug. 2017).

²²¹ See *Telecommunications Regulations of the People’s Republic of China*, art. 7 and the *Telecommunications Services Catalogue*, attached as the Annex (State Council Order No. 291, issued Sept. 25, 2000 and amended on July 29, 2014 and Feb. 6, 2016), which lists IDC under the VATS operator license.

²²² IDC licenses have only been granted to Chinese companies and joint ventures with Hong Kong or Macau investors and have not been granted to joint ventures with investors from the U.S. and other jurisdictions. See Samuel Yang, *Regulation of Cloud Computing in China*, PRACTICAL LAW (Apr. 26, 2017).

²²³ BSA THE SOFTWARE ALLIANCE [*hereinafter* “BSA”], *Submission, Section 301 Hearing 3* (Sept. 28, 2017).

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In view of this commercial reality, the only way U.S. suppliers are able to participate in the market is through contractual arrangements with Chinese entities eligible to obtain the required licenses.²²⁴ Under these arrangements, U.S. suppliers will train the employees of the Chinese license holder how to operate complex technology, and are effectively forced to provide their proprietary cloud computing technology, brands, and know-how to their Chinese partners, in exchange for a fee or a share of revenue.²²⁵ This reality disadvantages U.S. companies in China as these contractual arrangements provide even less rights and protections with respect to their investment and technology than would be available through an equity investment.

Until 2016, China permitted such contractual arrangements by granting the requisite license to the Chinese partner. However, recent draft regulations prohibit these arrangements, which have long been relied upon by foreign CSPs for market access. In March 2016, China released the *Notice on Regulating Business Operations in Cloud Service Market (Draft for Public Comment)* and the *Circular on Cleaning Up and Regulating the Internet Access Service Market*, which exacerbated the challenges facing U.S. CSPs operating in the Chinese market.²²⁶ According to the written submissions in this investigation, these measures effectively prohibit, *inter alia*, (1) the Chinese license holder from providing any facilities or other resources to the foreign CSP; (2) the foreign CSP from entering into contracts with customers directly; and (3) the provision of cloud services under the trademark of the foreign CSP.²²⁷

U.S. and other foreign CSPs operating in China through contractual arrangements inconsistent with this draft notice are now faced with the prospect of needing to restructure their existing arrangements and relinquish ownership and operations of their cloud business to a Chinese company in order to comply with the new rules.²²⁸ Indeed, although the draft notice has yet to be finalized, some U.S. suppliers have already done just that.²²⁹

2. Forced Disclosure of Sensitive Technical Information

A second technology transfer mechanism used by Chinese administrative agencies is the forced disclosure of sensitive technical information. In a wide variety of industry sectors, the Chinese

²²⁴ See e.g., Jason Verge, *Microsoft Launches Azure in China Via 21Vianet Group*, DATACENTER KNOWLEDGE, (May 22, 2013) (“In November 2012, Microsoft, 21Vianet and the Shanghai Municipal Government announced a strategic partnership agreement in which Microsoft licensed the technology know-how and rights to operate and provide Office 365 and Windows Azure services in China to 21Vianet. ‘21Vianet will act as an operation entity for Azure, hosting the service in its data centers and handling the customer relationship,’ said Vianet’s CFO, Shang Hsiao.”).

²²⁵ NAT’L FOREIGN TRADE COUNCIL [hereinafter “NFTC”], *Submission, Section 301 Hearing 3* (Sept. 28, 2017).

²²⁶ See *Notice on Regulating Business Operations in Cloud Service Market (Draft for Public Comment)* § 4(1)-4(5) (released by MIIT Mar. 2016); *Circular on Cleaning up and Regulating the Internet Access Service Market* (MIIT, Gong Xin Bu Xin Guan Han [2017] No. 32, issued Jan. 17, 2017).

²²⁷ ITI, *Submission, Section 301 Hearing 4* (Oct. 4, 2017); U.S. CHAMBER, *Submission, Section 301 Hearing 19* (Oct. 3, 2017); NFTC, *Submission, Section 301 Hearing 3-4* (Sept. 28, 2017); CompTIA, *Submission, Section 301 Hearing 7-8* (Sept. 28, 2017).

²²⁸ See e.g., Stratford, et al., *How China’s Draft Regulations Will Control Cloud Services*, LAW360 (Dec.15, 2016); McGinty et al., HOGAN LOVELLS, DRAFT LEGISLATION TO AFFECT CHINA CLOUD SERVICES MARKET ACCESS (Jan. 2017).

²²⁹ Cate Cadell, *Amazon Sells off China Cloud Assets as Tough New Rules Bite*, REUTERS, Nov. 13, 2017 (“In November 2017, for example, Amazon.com Inc. sold off its public cloud business in China to its local partner for \$301.2 million. According to Amazon, this was done ‘to comply with Chinese law.’”).

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government requires the disclosure of unreasonable amounts of sensitive technical information in exchange for necessary administrative approvals. As noted by European researchers:

A particular concern amongst various industries including but not limited to ICT, pharmaceuticals, chemicals, agro-food (in particular GMOs), machinery and financial services, centers on the depth of information which needs to be provided to the authorities for obtaining the authorization to build a factory, to market a product, etc. In some cases, this information was provided to the local industry who used this data to develop similar activities.²³⁰

U.S. stakeholders are particularly concerned because the forced disclosures put technology and intellectual property at risk.²³¹ Forced disclosures of information are especially problematic in cases in which the disclosure must be made not just to government officials but also to outsiders. This occurs when China requires reviews by “expert panels” that may include representatives from Chinese government, industry, academia, or others who may have a competitive interest in the information.²³²

Information disclosure and expert panel review requirements can arise at any stage of a company's operations in China and in a wide variety of industries. For example, in the pre-establishment phase, a company may be subject to expert review panels to assess the safety, environmental impact, and energy conservation of the proposed investment.²³³ Panels typically require companies to respond to “detailed information [requests] about project costs and revenue, capacity and equipment information, raw material and energy requirements, and other sensitive details about the operations.”²³⁴

The information required to be disclosed may include trade secrets. For example:

One company that submitted its safety assessment to an approval agency was required to provide specific temperature and pressure range information for its process equipment... that would make it easier for a competitor to learn about a production process the company considered to be a trade secret.²³⁵

As noted by the American Chamber of Commerce in Shanghai:

²³⁰ Paul Ranjard, Benoit Misonne, *Study 12: Exploring China's IP Environment*, in Study on the Future Opportunities and Challenges of EU-China Trade and Investment Relations 24 (2007).

²³¹ USCBC, *Submission, Section 301 Hearing 4-5* (Sept. 28, 2017); U.S. CHAMBER, *Submission, Section 301 Hearing 17* (Oct. 3, 2017).

²³² USCBC, UPDATE: LICENSING CHALLENGES AND BEST PRACTICES IN CHINA 8 (Jan. 2014); USCBC, IMPROVING CHINA'S LICENSING SYSTEM: RECOMMENDATIONS FOR KEY SECTORS 2 (Mar. 2014); Paul Ranjard, Benoit Misonne, *Study 12: Exploring China's IP Environment*, in Study on the Future Opportunities and Challenges of EU-China Trade and Investment Relations 15 (2007).

²³³ USCBC, *Submission, Section 301 Hearing 5* (Sept. 28, 2017). See e.g., *China Energy Conservation Product Certification Management Measures* (National Economic and Trade Commission, issued Feb. 11, 1999), art. 3 states that evidence a product meets “standards or technological needs” is one of the criteria for receiving the *Energy Conservation Certificate*.

²³⁴ USCBC, IMPROVING CHINA'S LICENSING SYSTEM: RECOMMENDATIONS FOR KEY SECTORS 4 (Mar. 2014).

²³⁵ USCBC, IMPROVING CHINA'S LICENSING SYSTEM: RECOMMENDATIONS FOR KEY SECTORS 3 (Mar. 2014).

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Companies have also expressed concerns about some of China's product approval requirements. In particular, for companies to gain approval from regulatory agencies they must disclose proprietary formula or designs. Despite assurances by regulators, companies are still not confident that the information will be protected. Some companies report that they have been able to push back but others have not been as successful and must face the difficult choice of seeking product approval, which could put proprietary information at risk, or not pursuing market opportunities in China in order to protect their IP.²³⁶

Similarly, environmental impact and energy conservation assessments require expert panel reviews,²³⁷ and sometimes involve a "pre-review" by a separate panel prior to application.²³⁸ Environmental impact panels "frequently include competitors or scholars affiliated with competitors."²³⁹ In general, the panels introduce significant liability for companies seeking to safeguard their trade secrets, particularly since there are few safeguards in place to ensure that information is not misused.²⁴⁰

Expert review panels do not just apply before a company is established in China. For example, in the post-establishment phase, expert review panels may be required for security reviews in a range of industries under China's *Cybersecurity Law of the People's Republic of China* (*Cybersecurity Law*).²⁴¹ Although many implementing regulations of the cyber-review regime are in draft form only, stakeholders report concerns that current ambiguities in the law will be used to pressure unnecessary disclosure of companies' most critical technologies.²⁴² For example, companies may be forced to disclose critical technologies, including source code, complete design databases, behavior models, logic models, and even floor plans and physical layouts of central processing units.²⁴³

D. China's Acts, Policies, and Practices Are Unreasonable

²³⁶ AM. CHAMBER OF COMMERCE SHANGHAI, *Submission, Section 301 Hearing 2* (Sept. 28, 2017);

²³⁷ See *Environmental Impact Assessment Law of the People's Republic of China* (PRC Environmental Impact Assessment Law), art. 11, 13. (adopted at the 30th Meeting of the Standing Committee of the Ninth NPC, Order No. 77, on Oct. 28, 2002, effective Sept. 1, 2003, amended July 2, 2016). Art. 13 stipulates that the "expert working groups" shall be comprised of government representatives and other experts from the list of experts within the expert database created by the relevant government authority.

²³⁸ USCBC, *Submission, Section 301 Hearing 1* (Oct. 20, 2017). See *PRC Environmental Impact Assessment Law*, art. 11.

²³⁹ USCBC, *Submission, Section 301 Hearing 1* (Oct. 20, 2017).

²⁴⁰ USCBC, UPDATE: LICENSING CHALLENGES AND BEST PRACTICES IN CHINA 8-9 (Jan. 2014). See e.g., *Administrative License Law of the People's Republic of China* (PRC Administrative License Law) (adopted by the Fourth Session of the Standing Committee of the Tenth NPC, Order No. 7, on Aug. 27, 2003, effective July 1, 2004), art. 31 (regarding scope of required information), art. 54-55 (regarding the types of technical material which need to be submitted for certain licenses), and art. 76 (regarding compensation in the event of violation).

²⁴¹ *Cybersecurity Law of the People's Republic of China* (adopted by the Twenty-fourth Session of the Twelfth NPC, on Nov. 7, 2016, effective June 1, 2017). Submissions received in this investigation are summarized in Appendix C to this report.

²⁴² See CTA, *Submission, Section 301 Hearing 6* (Sept. 28, 2017); U.S. CHAMBER, *Submission* at 31; TIA, *Submission, Section 301 Hearing 2* (Sept. 28, 2017).

²⁴³ SEMICONDUCTOR INDUSTRY ASS'N [hereinafter "SIA"], *Submission, Section 301 Hearing 10*, fn 42 (Sept. 28, 2017).

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Conduct that is “unreasonable” is actionable under Section 301, provided that it also burdens or restricts U.S. commerce. The statute defines an “unreasonable” act, practice, or policy as one that “while not necessarily in violation of, or inconsistent with, the international legal rights of the United States is otherwise unfair and inequitable.”²⁴⁴ The statute further provides that in determining unreasonableness, the USTR shall take into account, to the extent appropriate, whether foreign companies in the United States have access to reciprocal opportunities to those denied U.S. companies.²⁴⁵ Based on the foregoing factors, China’s technology transfer regime is unreasonable.

According to the Organization for Economic Co-operation and Development (OECD), very few countries employ foreign equity limitations or screen foreign investments on the basis of potential technology-related benefits.²⁴⁶ China’s foreign investment restrictions and administrative review and licensing systems not only exert great technology transfer pressures on U.S. companies, but also are substantially more restrictive than those of the United States and most other countries. Indeed, the OECD has consistently ranked China’s foreign investment regulatory regime as one of the most restrictive in the world based on an evaluation of (i) equity restrictions on foreign ownership, (ii) screening and prior approval requirements, (iii) rules for key personnel, and (iv) restrictions on the operation of foreign enterprises.²⁴⁷ For example, in 2016, China was ranked the fourth most restrictive economy out of 63 OECD and non-OECD member economies measured—only the Philippines, Saudi Arabia, and Myanmar were more restrictive. This low ranking is particularly striking given that China is the world’s second largest economy and it has extensive global trading relationships as compared to the other economies at the bottom of the index. China’s restrictiveness score was also 3.7 times higher than that of the United States.²⁴⁸

Moreover, the OECD’s regulatory restrictiveness index does not even account for the full breadth of restrictive practices used by China to pressure technology transfer. The OECD index only captures those laws and policies pertaining to equity caps and pre-establishment administrative screening processes that have been formally adopted by the Chinese central government.²⁴⁹ As discussed above, China’s technology transfer requirements often do not take

²⁴⁴ 19 U.S.C. § 2411(d)(3)(A).

²⁴⁵ 19 U.S.C. § 2411(d)(3)(D).

²⁴⁶ PRZEMYSŁAW KOWALSKI, DANIEL RABAIOLI, SEBASTIAN VALLEJO, OECD, INTERNATIONAL TECHNOLOGY TRANSFER MEASURES IN AN INTERCONNECTED WORLD: LESSONS AND POLICY IMPLICATIONS, TAD/TC/WP(2017)1/FINAL, 2017 43-45 ¶ 130-1 (2017) (“In particular, making FDI in technology-related sectors conditional upon joint ventures...or requiring direct transfer of technology to the local partner... are not found in most of the countries [surveyed]. This may be a result of awareness that such laws deter investors and may be counterproductive. However, such measures are still present in two developing countries, namely China and Nigeria...Screening on the basis of potential technology-related benefits... is present in only five countries. For example, in China, for a project to be approved, it should meet the requirements of mid and long term planning for national economic development, de facto meaning that the government will screen investment on the basis of its technology-transfer potential.”).

²⁴⁷ *FDI Regulatory Restrictiveness Index*, OECD, <http://www.oecd.org/investment/fdiindex.htm> (last visited Oct. 20, 2017).

²⁴⁸ *FDI Regulatory Restrictiveness Index*, OECD, <http://www.oecd.org/investment/fdiindex.htm> (last visited Oct. 20, 2017).

²⁴⁹ In its methodology, the OECD specifies that its regulatory restrictiveness measures do not account for measures imposed at the sub-national level, and do not account for variability in restrictiveness stemming from implementation of formally adopted laws or policies. In other words, the regulatory restrictiveness index does not

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the form of written laws or policies promulgated by China's central government and are often carried out orally and "behind closed doors."²⁵⁰ Evidence collected in this investigation also has demonstrated that forced disclosure of technical information occurs throughout the life span of U.S. companies' operations in China through a variety of administrative reviews and licensing processes.²⁵¹ These practices are not captured by the OECD's index.

China's regime is ultimately unfair and inequitable because it greatly restricts the freedom of U.S. companies to deploy and fully protect their valuable and hard-won technologies to compete in China. Instead of fostering a level playing field, China's regime gives systematic and structural support for technology acquisition by Chinese companies from U.S. and other foreign competitors.²⁵² Faced with China's regime, U.S. companies must either cede substantial control over their valuable technologies or be closed out of one of the world's largest and fastest-growing economies.²⁵³ This results in a highly asymmetric playing field where U.S. companies face immensely restrictive policies in China, while Chinese companies are not equally restricted in the United States.²⁵⁴

Accordingly, China's technology transfer regime—including foreign ownership restrictions and administrative approval and licensing process that are used to require or pressure the transfer of technology from U.S. companies to Chinese entities—is unfair, inequitable, and results in nonreciprocal opportunities relative to Chinese companies operating in the United States. These acts, practices, or policies are unreasonable as defined in Section 301.

E. China's Acts, Policies, and Practices Burden or Restrict U.S. Commerce

The unreasonable act, policy, or practice of a foreign country must also burden or restrict U.S. commerce to be actionable under Section 301. In the present case, required or pressured technology transfer significantly undermines the value of American technology (including IP), thereby distorting markets and compromising U.S. companies' global competitiveness. Therefore, China's acts, policies, and practices that effectuate technology transfer burden and restrict U.S. commerce.

Technology and IP drive economic growth and sustain the competitive edge of the U.S. economy.²⁵⁵ According to the Department of Commerce, in 2014, IP-intensive industries

account for restrictions that are informally applied "behind closed doors", by government officials. *See* Blanka Kalinova, et. al., OECD, FDI RESTRICTIVENESS INDEX: 2010 UPDATE 6 (2010).

²⁵⁰ *See supra* Section II.A-C.

²⁵¹ *See supra* Section II.C. In a recent AmCham China survey, 52% of respondents believe that in China the risk of "IP leakage and IT and data security threats" was greater than those in other countries. AMCHAM CHINA, 2018 CHINA BUSINESS CLIMATE SURVEY REPORT 31 (2018).

²⁵² BSA, *Submission, Section 301 Hearing* 3-4 (Sept. 28, 2017); CSI, *Submission, Section 301 Hearing* 5 (Sept. 28, 2017); NAM, *Submission, Section 301 Hearing* 12-13 (Sept. 28, 2017).

²⁵³ BSA, *Submission, Section 301 Hearing* 3 (Sept. 28, 2017); U.S. CHAMBER, *Submission, Section 301 Hearing* 15 (Oct. 3, 2017).

²⁵⁴ U.S. CHAMBER, *Submission, Section 301 Hearing* 40 (Oct. 3, 2017).

²⁵⁵ U.S. PATENT & TRADEMARK OFFICE [*hereinafter* "USPTO"], & ECON. & STATISTICS ADMIN. INTELLECTUAL PROPERTY AND THE U.S. ECONOMY: 2016 UPDATE 1 (2016); *see also* NAT'L SCIENCE BOARD, SCIENCE & ENGINEERING INDICATORS, 6-20 (2016) (among all major economies, the United States has the highest concentration of knowledge-intensive and technology-intensive industries as a share of total economic activity).

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supported approximately 45.5 million jobs in the United States, and workers in those industries earned significantly higher wages on average than those working in non-IP-intensive industries.²⁵⁶ Further, IP-intensive companies represented more than 39 percent of U.S. GDP, and accounted for 52 percent of U.S. exports.²⁵⁷ Therefore, as noted by multiple submissions in this investigation, the well-being of U.S. companies and their workers, along with the broader U.S. economy, is dependent in substantial part on the continued strength of IP-intensive industries.²⁵⁸

China's technology transfer policies effectively deprive U.S. companies of the full value of their IP and technology and inhibit them from fairly competing in the large China market. When U.S. companies are required or pressured to transfer their technology, they may experience not only a direct loss of key competitive assets, but also may lose their technological competitive edge in global markets. Moreover, as noted by submissions in this investigation, Chinese beneficiaries of technology transfer under the highly favorable circumstances created by China acquire powerful advantages without the expense or risk of developing the technology themselves, and thus enjoy an additional competitive advantage over foreign innovators.²⁵⁹ If U.S. companies alternatively elect not to comply with Chinese requirements, the companies are excluded from an important and growing market, foregoing sales and export opportunities, and economies of scale.²⁶⁰

No matter how a U.S. company responds, the Chinese government's technology transfer regime generates considerable negative impacts on competition by depriving U.S. companies of the ability to achieve reasonable returns on their investments in the Chinese market and exploit legitimately obtained intellectual property rights, and prevents them from making investments at all.²⁶¹ Given the strategic importance of the large and growing Chinese market, obstacles to level competition are acutely harmful to U.S. companies.

Moreover, U.S. companies that lose the option of exclusive enjoyment of their valuable technology and are therefore unable to compete fairly in China may become less globally competitive in the long run. When U.S. companies are deprived of fair returns on their investment in IP, they are unable to achieve the growth necessary to reinvest in innovation.²⁶² In this sense, China's technology transfer regime directly burdens the innovation ecosystem that is an engine of economic growth in the United States and similarly-situated economies.²⁶³

²⁵⁶ USPTO, *INTELLECTUAL PROPERTY AND THE U.S. ECONOMY: 2016 UPDATE* 4, 30 (2016).

²⁵⁷ USPTO, *INTELLECTUAL PROPERTY AND THE U.S. ECONOMY: 2016 UPDATE* iii (2016).

²⁵⁸ WILEYREIN, *Submission, Section 301 Hearing* 11 (Sept. 28, 2017); IP COMMISSION, *Submission, Section 301 Hearing* 6 (Sept. 28 2017); *see generally* USPTO, *INTELLECTUAL PROPERTY AND THE U.S. ECONOMY: 2016 UPDATE* (2016).

²⁵⁹ WILEYREIN, *Submission, Section 301 Hearing* 11 (Sept. 28, 2017); SOLARWORLD, *Submission, Section 301 Hearing* 2 (Oct. 20, 2017); NAM, *Submission, Section 301 Hearing* 9-10 (Sept. 28, 2017); CSIS, *Submission, Section 301 Hearing* 1 (Sept. 28, 2017).

²⁶⁰ AMCHAM SHANGHAI, *Submission, Section 301 Hearing* 2 (Sept. 28, 2017); NAM, *Submission, Section 301 Hearing* 13 (Sept. 28, 2017).

²⁶¹ WILEYREIN, *Submission, Section 301 Hearing* 11 (Sept. 28, 2017).

²⁶² WILEYREIN, *Submission, Section 301 Hearing* 11 (Sept. 28, 2017); *see also* IAM, *Submission, Section 301 Hearing* 1 (Sept. 29, 2017).

²⁶³ WILEYREIN, *Submission, Section 301 Hearing* 11 (Sept. 28, 2017).

II. China's Unfair Technology Transfer Regime for U.S. Companies in China

In fact, the displacement of global industrial leaders—including U.S. companies—so that China may achieve global market dominance is an explicit policy goal of the Chinese government.²⁶⁴ According to China's *Made in China 2025* initiative, for example, the Chinese government seeks to acquire foreign technology, absorb that technology to boost indigenous innovation, and displace foreign competitors in both domestic and international markets.²⁶⁵ China's technology transfer regime is a key mechanism to achieve this goal.²⁶⁶

Annual surveys of companies conducted by AmCham China and USCBC indicate that addressing China's technology transfer regime would significantly increase U.S. investment in China. According to the 2018 AmCham China survey of U.S. companies, surveyed companies stated that they would significantly increase investment if China's government were able to: provide greater regulatory transparency and predictability; limit the use of industrial policies that create barriers; allow U.S. companies to enter business segments that are currently restricted; provide recourse for unfair investment treatment; allow U.S. companies to increase control over their operations by reducing the need for joint ventures and local business partners; allow strategic acquisitions; and reduce the need to engage in technology transfer.²⁶⁷

Ultimately, China's acts, policies, and practices that require or pressure technology transfer undermine U.S. companies' valuable IP, weaken their global competitiveness, and stunt investment in innovation.²⁶⁸ Therefore, China's acts, policies, and practices with respect to technology transfer burden and restrict U.S. commerce.²⁶⁹

²⁶⁴ U.S. CHAMBER, *MADE IN CHINA 2025: GLOBAL AMBITIONS BUILT ON LOCAL PROTECTIONS* 13 (2017); BJÖRN CONRAD, ET AL., MERCATOR INST. FOR CHINA STUDIES [*hereinafter* "MERICS"], *MADE IN CHINA 2025* 14, 16 (2016).

²⁶⁵ MERICS, *MADE IN CHINA 2025* 16 (2016) (technological development to achieve the ultimate objective of import substitution is pervasive throughout the plan, which specifically calls for the development and usage of indigenous products in a variety of industries).

²⁶⁶ *See* MERICS, *MADE IN CHINA 2025* 41 (2016).

²⁶⁷ AMCHAM CHINA, *2018 CHINA BUSINESS CLIMATE SURVEY REPORT* 53 (2018).

²⁶⁸ WILEYREIN, *Submission, Section 301 Hearing* 11 (Sept. 28, 2017); U.S. CHAMBER, *MADE IN CHINA 2025: GLOBAL AMBITIONS BUILT ON LOCAL PROTECTIONS* 7 (2017).

²⁶⁹ This finding is consistent with numerous other sources that confirm that Chinese technology transfer practices burden U.S. commerce. *See generally* USTR, NTE, SPECIAL 301 AND WTO COMPLIANCE REPORTS; U.S.-CHINA EC. & SEC.REV. COMM'N (2016); USITC, INV. NO. 332-519, CHINA: EFFECTS OF INTELLECTUAL PROPERTY INFRINGEMENT AND INDIGENOUS INNOVATION POLICIES ON THE U.S. ECONOMY (2011); USITC, INV. NO. 332-514, CHINA: INTELLECTUAL PROPERTY INFRINGEMENT, INDIGENOUS INNOVATION POLICIES, AND FRAMEWORKS FOR MEASURING THE EFFECTS ON THE U.S. ECONOMY (2010); U.S.-CHINA ECON. & SEC. REV. COMM'N, CHINA'S FIVE-YEAR PLAN, INDIGENOUS INNOVATION AND TECHNOLOGY TRANSFERS, AND OUTSOURCING (2011).

III. China's Discriminatory Licensing Restrictions

A. Introduction

The second category of conduct set forth in the *Federal Register Notice* issued on August 24, 2017, addresses China's acts, policies, and practices depriving U.S. companies of the ability to set market-based, mutually-desirable terms in licensing and other technology-related negotiations with Chinese companies. In addition to the difficulties with administrative licensing discussed in Section II, China also intervenes in U.S. firms' investments and related activities in China through restrictions on their technology licensing. These restrictions result in discriminatory technology transfer-related acts, policies, and practices that burden U.S. commerce.

China's regime of technology regulations deprives U.S. technology owners of the ability to bargain and set terms for technology transfer that are free from interference by China. U.S. firms seeking to license technologies to Chinese enterprises must do so on non-market-based terms that favor Chinese recipients. Moreover, the bureaucratic hurdles contained in licensing regulations provide China with an additional opportunity to pressure firms to transfer more technology, or transfer it on more favorable terms, in exchange for administrative approvals.

China's imposition of mandatory adverse licensing terms is reflected in official measures that impose a different set of rules for imported technology transfers originating from outside China, such as from U.S. entities attempting to do business in China, compared to separate rules for technology transfers occurring between two domestic companies. The mandatory requirements for importation of foreign technology are discriminatory and clearly more burdensome than the domestic requirements, as explained in detail below. The result of these mandatory terms imposed only on technology import contracts is that foreign entities (including U.S. entities) doing business in China are at a disadvantage compared to Chinese entities. These restrictions benefit domestic entities at the expense of foreign competitors, including U.S. competitors, because the mandatory terms are only imposed on technology import contracts and do not govern technology contracts between two domestic parties. From the outset, the regime is tipped in favor of Chinese entities before a U.S. company even attempts to enter the market in China through a legal framework adversely influencing all technology negotiations and contracts.

As explained in more detail below, due to mandatory provisions in China's regime of technology regulations, U.S. entities seeking to license foreign technologies to enterprises in China must do so on non-market-based terms that favor Chinese recipients. One such entity, the Office of Intellectual Property (IP) and Industry Research Alliances (IPIRA) at the University of California, Berkeley, summarized its experiences with these unacceptable terms mandated by the Chinese regime, provided at Appendix E to this report.

B. Foreign Licensing Restrictions and China's Technology Transfer Regime

China regulates instances in which an entity seeks to transfer technology into China under its *Regulations of the People's Republic of China on the Administration of the Import and Export of*

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Technologies (TIER)²⁷⁰ and situations in which a foreign entity seeks — as part of its investment in its foreign-invested enterprise in China — to transfer technology to that entity by means of the *Regulations for the Implementation of the Law of the People's Republic of China on Chinese-Foreign Equity Joint Ventures* (JV Regulations).²⁷¹ These Chinese regulations provide less favorable treatment of foreign entities than the comparable treatment of domestic Chinese entities under the *Contract Law of the People's Republic of China* (PRC Contract Law).²⁷²

Specifically, TIER imposes the following restrictions (among others) on the ability of U.S. technology owners to negotiate market-based terms for the transfer of technology into China.²⁷³

- **Indemnity terms:** TIER mandates that all indemnity risks be borne by the foreign technology transferor. Parties cannot negotiate the allocation of this risk, even if the transferee would like to bear the risk for a variety of reasons. Specifically, the licensor (typically a foreign entity for a technology import contract) is liable for any claims of “infringing [a third party’s] lawful rights” made against the licensee resulting from the use of the licensed or transferred technology.²⁷⁴ This requirement is particularly onerous for small U.S. firms seeking to license technology, as they typically would not have the expertise or resources necessary to assess and cover the risk of third party litigation.
- **Rights in technology improvements:** TIER mandates that all improvements belong to the party making the improvement. TIER further provides that the licensor cannot stop the licensee from making improvements to the technology.²⁷⁵ Parties cannot negotiate shared ownership or that the licensor will own improvements made by the licensee.²⁷⁶ These provisions are particularly harmful to a U.S. licensor if the Chinese licensee makes an improvement severable from the original invention and then patents the severable improvement in China or elsewhere. The TIER’s provision on mandatory ownership of improvements enables the Chinese licensee to enjoy the

²⁷⁰ *Regulations of the People's Republic of China on the Administration of the Import and Export of Technologies* [hereinafter “TIER”] (Order of the State Council No. 331, issued Dec. 10, 2001, effective Jan. 1, 2002, amended Jan. 8, 2011, in Order of the State Council No. 588). Art. 2 of TIER defines technology import and export as “the act of transferring technology from outside the territory of ... China to inside the territory of ... China or from inside the territory of ... China to outside the territory of ... China.” Several key provisions impose mandatory terms only on technology import contracts. For example, art. 24 provides that “[t]he licensor of a technology *import* contract shall ...” while art. 27 applies “[d]uring the valid term of a technology *import* contract” and art. 29 provides that “[a] technology *import* contract may not contain” (emphases added).

²⁷¹ *Regulations for the Implementation of the Law of the People's Republic of China on Chinese-Foreign Equity Joint Ventures* [hereinafter “JV Regulations”] (State Council, Guo Fa [1983] No. 148, issued Sep. 20, 1983, effective Sep. 20, 1983, amended Jan. 15, 1986, in Guo Fa [1986] No. 6, further amended Dec. 21, 1987, in Guo Fa [1987] No. 110, Jul. 22, 2001, in Order of the State Council No. 311, Jan. 8, 2011, in Order of the State Council No. 588, and Feb. 19, 2014, in Order of the State Council No. 648).

²⁷² *Contract Law of the People's Republic of China* [hereinafter “PRC Contract Law”] (adopted at the Second Session of the Ninth NPC on Mar. 15, 1999, effective Oct. 1, 1999).

²⁷³ TIER, art. 2.

²⁷⁴ TIER, art. 24.

²⁷⁵ TIER, art. 29(3).

²⁷⁶ TIER, art. 27.

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severable improvement without the original technology licensed by the U.S. entity to the Chinese entity, and block the U.S. entity from enjoying the benefit of the severable improvement. The provisions prevent the U.S. entity from restricting its Chinese licensee from making improvements to the transferred U.S. technology or from using such improvements in the market place, including using the improvements to the detriment of the U.S. licensor.

The JV Regulations also mandate terms that are non-market-based for technology agreements in joint ventures between Chinese and foreign entities. Among other provisions, the JV Regulations generally limit technology contracts to a duration of ten years and provide that the Chinese joint venture must be granted the right to use the technology in perpetuity after the technology contract expires.²⁷⁷

The JV Regulations further impose requirements on the characteristics of transferred technologies. The technologies must be capable of (i) significantly improving the performance or quality of existing products and increasing productivity or (ii) significantly saving raw materials, fuel, or power; and (iii) being applicable and advanced, such that the joint venture's products generate significant social and economic benefits in the domestic market or are competitive in the international market.²⁷⁸ These requirements provide opportunities for Chinese officials to pressure foreign firms to transfer the latest and most advanced versions of their technologies, restricting their freedom to deploy the technology as they choose, and notwithstanding any intellectual property infringement concerns the firm may have.

The JV Regulations in particular provide ample opportunities for Chinese officials to review foreign technologies in detail and pressure transfer to Chinese partners. For example, as with wholly foreign-owned enterprises, initial capital contributions from the foreign party may include industrial property rights, know-how, and other intellectual property rights.²⁷⁹ The foreign party may also license the right to use technology to the joint venture. The license must be reviewed and approved by China, typically at the same time as the joint venture application. Although there are no express limits on the amount that the foreign licensor is paid for the license, Chinese regulations provide guidelines to determine if the payments are appropriate and should be approved by China.²⁸⁰

The technology licensing regime in China applies to all importers of foreign technology. The TIER, JV Regulations, and the *PRC Contract Law* all have provisions applicable to technology transfer agreements involving a foreign party. TIER applies to "acts of transferring technology from outside the territory of the People's Republic of China into the territory of the People's Republic of China or vice versa by way of trade, investment, or economic and technical

²⁷⁷ *JV Regulations*, art. 43.

²⁷⁸ *JV Regulations*, arts. 25, 41.

²⁷⁹ *JV Regulations*, art. 5. See also *Law of the People's Republic of China on Chinese-Foreign Contractual Joint Ventures* art. 8 (adopted at the First Session of the Seventh NPC on Apr. 13, 1988, amended by the 18th Session of the Standing Committee of the NPC on Oct. 31, 2000, further amended Sep. 3, 2016, in Executive Order No. 51, and Nov. 7, 2016, in Executive Order No. 57, and Nov. 4, 2017, in Executive Order No. 81).

²⁸⁰ JAMES ZIMMERMAN, *CHINA LAW DESKBOOK: A LEGAL GUIDE FOR FOREIGN-INVESTED ENTERPRISES* 102, 109–110 (Am. Bar Ass'n 4th ed. 2014).

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cooperation.”²⁸¹ The TIER further defines these acts to “include assignment of the patent right or right to apply for patents, licensing for patent exploitation, assignment of technical know-how, technical services and transfer of technology by other means.”²⁸² The JV Regulations apply to technology “introduction” contracts under Article 40, defined as the “necessary technology obtained by the joint venture by means of technology transfer from a third party or parties to the joint venture.” The *PRC Contract Law* addresses “Technology Contracts” in its Chapter 18. Within Chapter 18, Article 322 defines a technology contract as a “contract made by the parties to define their mutual rights and obligations for technology development, transfer, consultation or service.”

1. Different Outcomes for U.S. Companies versus Chinese Competitors

Foreign entities cannot fully take advantage of the domestic Chinese contract licensing regime under the *PRC Contract Law* because conflicting articles of the TIER and JV Regulations control over the *PRC Contract Law*. Article 123 of the *PRC Contract Law* provides that the *PRC Contract Law* will not control under Chinese law “where other laws stipulate otherwise on contracts.” In addition, Chapter 18 of the *PRC Contract Law*, which covers technology contracts, specifically addresses the “Applicability of Other Laws of Administrative Regulations” in Article 355, which stipulates that “[w]here laws and administrative regulations stipulate otherwise on contracts for technology import and export or on contracts for patents and patent applications, the relevant provisions thereof shall govern.” Thereby, and as explained in detail below, where the provisions of the TIER and the JV Regulations are in conflict with those of the *PRC Contract Law*, the TIER and the JV Regulations, respectively, control under the licensing regime in China.²⁸³

TIER imposes a number of procedural requirements that the *PRC Contract Law* does not impose. Under TIER, all technology import contracts must be notified to China and copies of such contracts provided.²⁸⁴ If such contracts are not duly notified as required, the foreign technology licensor is denied the ability to remit any royalty payments back to its home country.²⁸⁵ From the outset, foreign imported technology licensors, including U.S. technology licensors, must meet obligations that are not imposed on their Chinese competitors under the *PRC Contract Law*.

2. Indemnification Against Infringement Claims

The TIER imposes obligatory indemnifications and other special treatment in favor of Chinese licensees of imported technology.²⁸⁶ Under Article 24, in a technology import contract the “liabilities shall be borne by the licensor” for any infringement of the “lawful interests of any other person.” The TIER does not permit parties to freely contract issues of liability. Therefore,

²⁸¹ TIER, art. 2.

²⁸² TIER, art. 2.

²⁸³ See NATIONAL FOREIGN TRADE COUNCIL [hereinafter “NFTC”], *Submission, Section 301 Hearing 7* (Sept. 28, 2017).

²⁸⁴ TIER, art. 18.

²⁸⁵ See TIER, art. 20.

²⁸⁶ TIER, art. 24. See also BSA | THE SOFTWARE ALLIANCE [hereinafter “BSA”], *Submission, Section 301 Hearing § II(A)* (Sept. 28, 2017) (referring to art. 24 of the TIER as part of “insufficient and contradictory laws relating to contracts and liability for infringement” in China).

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all U.S. technology licensors of imported technology are required to indemnify Chinese technology licensees for, among other things, third party infringement claims based on use of the imported technology.²⁸⁷ In addition, the indemnification requirement in the TIER on “lawful interests of any other person” does not appear to be limited to the “other person’s” intellectual property rights. Therefore, the TIER potentially obligates a U.S. technology licensor to indemnify its Chinese licensee for any infringement suit by a third party.²⁸⁸

In contrast, Article 353 of the *PRC Contract Law* provides parties negotiating for the transfer of domestic technology within China with flexibility to determine the scope of the licensor’s liability for indemnification. Article 353 sets out that “[w]here the exploitation of the patent or utilization of the technical know-how by the transferee as contracted infringes upon the legitimate rights and interests of others, the liability therefor shall be borne by the transferor, *unless the parties stipulate otherwise.*”²⁸⁹ Unlike for licensors of foreign technology, the *PRC Contract Law* permits parties to a domestic technology transfer agreement to negotiate issues of liability in Article 353, whereas Article 24 of the TIER does not permit parties to contract around liability for infringement claims and no other article of the TIER permits parties to agree to terms on liability.²⁹⁰

3. Ownership of Improvements to Licensed Technology

Article 29(3) of the TIER prohibits U.S. technology licensors from restricting their Chinese licensees to make or use improvements to the transferred technology. Article 29(3) prohibits technology import contracts from including any clause that “restrict[s] the receiving party from improving the technology supplied by the supplying party, or restricting the receiving party from using the improved technology.” This prohibition means that U.S. licensors cannot restrict their Chinese licensees from using the transferred technologies, which could include valuable information protected not only by patent laws but also by trade secret protections resulting from research and development conducted and paid for by the U.S. licensors, to then improve the transferred technologies. By prohibiting any restriction on the licensee to make or use improved technology, Article 29 permits Chinese licensees to free ride on U.S. technology licensors’ research and development costs in any imported technology transfer agreement.

Article 27 of the TIER requires that the rights to any of these improvements to imported technology will vest in the party making the improvement.²⁹¹ As with the liability issues in

²⁸⁷ See CHINA CHAMBER OF COMMERCE FOR IMPORT & EXPORT OF MACHINERY AND ELECTRONIC PRODUCTS [*hereinafter* “CCCME”], *Submission, Section 301 Hearing 10* (Sept. 27, 2017) (“the provision only mentions the liability of the licensor”).

²⁸⁸ See INFORMATION TECHNOLOGY & INNOVATION FOUNDATION [*hereinafter* “ITIF”], *Submission, Section 301 Hearing 15–16* (Oct. 25, 2017) (“Article 24 requires that licensor (licensor importing technology into China for that matter) to bear full liability regardless whether or [*sic*] the licensor is aware that use of the licensed technology may ‘infringe upon the lawful rights and interests of another person.’ In fact, not only does awareness not matter, the liability could result from any third party’s ‘lawful rights and interest.’ That is, the liability could include tort and other liability beyond IP infringements.”).

²⁸⁹ Emphasis added.

²⁹⁰ See NFTC, *Submission, Section 301 Hearing 7* (Sept. 28, 2017).

²⁹¹ See, e.g., CHINA CHAMBER OF INT’L. COMMERCE [*hereinafter* “CCOIC”], *Submission, Section 301 Hearing 62* (Sept. 28, 2017) (stating that “the basic meaning is that an achievement made in improving the technology

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Article 24, the TIER restrictions on the ownership of improvements cannot be contractually avoided by parties to the imported technology contract because “[the right over] any improvement on the technologies shall be vested with the party which has made the improvement.” The “shall be vested” language in Article 27 of the TIER does not permit the parties to a technology import contract to negotiate other terms. The restriction means that a U.S. technology licensor cannot negotiate for ownership rights to any improvements made by its Chinese licensee while that licensee is using the U.S. licensor’s technology, and, with the restriction against prohibiting improvements from Article 29, the U.S. technology licensor has no means to negotiate how its technology will be “improved” or how rights in that improved technology will be vested in the Chinese licensee.

By contrast, under Article 354 of the *PRC Contract Law*, domestic Chinese companies have flexibility to determine how any benefits, licenses, and ownership rights arising from improvements to technology will be shared between the parties to the technology transfer contract. Article 354 provides that “[t]he parties to a technological transfer contract may, in accordance with the principle of mutual benefit, stipulate the method for sharing any subsequently improved technological result obtained from the patent exploitation or utilization of the technical know-how.” Unlike the restrictions placed on U.S. importing technology licensors, licensors party to domestic technology transfer agreements can negotiate the terms for sharing the benefits of any improvements to a licensed patent or trade secret.²⁹²

The *PRC Contract Law* also provides a default position for parties to domestic technology transfer agreements such that, should the parties fail to agree on how to determine ownership of any improvements, or if the contractual language regarding improvements is vague,²⁹³ then the default is that neither party owns any improvement made by the other party to the contract. This default provision only provides a non-mandatory backstop position for technology transfer contracts, as well as a position from which to negotiate such contracts, yet such flexibility is only available to companies transferring technology domestically.

4. Use of Technology after the Technology Contract Expires

concerned belongs to the party making the improvement”); CCCME, *Submission, Section 301 Hearing 10* (Oct. 23, 2017).

²⁹² A Chinese commentator has also identified this inconsistency between the terms of art. 27 of TIER and art. 354 of the *PRC Contract Law*. In a general overview to TIER published shortly after its promulgation, a Chinese patent attorney noted that it was a “very real problem” that a foreign party might see its co-ownership rights to an improvement rescinded by a Chinese court, even if the foreign party and Chinese party had agreed to share ownership of such improvements based on the *PRC Contract Law*. In that writer’s opinion, the *PRC Contract Law* permitted “a comparatively flexible and elastic means” by which the parties may, on the principle of mutual benefit, contract for ownership of these improvements which are “seeking truth from facts, in the long term interests of the parties.” Wang Chongfang, *Thoughts and Interpretations of TIER*, 13 *INTELLECTUAL PROPERTY RIGHTS* 31 (2003).

²⁹³ Art. 61 of the *PRC Contract Law* applies to “Indeterminate Terms; Supplementary Agreement” and states that if a “[f]or a contract that has become valid, where the parties have not stipulated the contents regarding quality, price or remuneration or the place of performance, or have stipulated them unclearly, the parties may supplement them by agreement; if they are unable to reach a supplementary agreement, the problem shall be determined in accordance with the related clauses of the contract or with trade practices.” Art. 354 of the *PRC Contract Law* specifies that art. 61 applies when determining whether the method of sharing improvement is “not stipulated or not clearly stipulated, nor can [...] be determined pursuant to the provisions of Article 61,” and is therefore vague.

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In the course of the Section 301 investigation, USTR identified additional licensing restrictions in the JV Regulations. In addition to the TIER, the JV Regulations, too, include licensing restrictions on technology exporting parties involved in joint ventures within China's territory (e.g., U.S. parties exporting technology to their Chinese joint venture). The licensing restrictions result in securing benefits for technology importing parties (the Chinese joint ventures importing technology into China from the United States). Article 43(3) of the JV Regulations states that the term of the technology transfer agreement to the JV shall "generally not exceed ten years." The provision may result in U.S. companies only having control over their transferred technology for ten years, even though some forms of technology, such as patents and trade secrets, may be protectable for much longer than ten years. After the conclusion of the JV-related technology transfer agreement, Article 43(4) stipulates that the "technology importing party shall have the right to continue using the technology." The result of Article 43(4) is that Chinese joint ventures to technology contracts have the right under the JV Regulations to continue to use transferred technology after the expiration of the related technology contract, even if the transferred technology would otherwise be protected from use by that Chinese party. This means that under the JV Regulations, the Chinese joint venture licensee has the right to use the U.S. licensor's technology in perpetuity after the technology contract expires, without paying compensation or subject to other terms.

C. Concerns Raised by Other Trading Partners

Other governments have identified China's technology transfer licensing regime as a problem. In connection with the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Council transitional reviews of China at the World Trade Organization in 2009 and 2011, Japan, the EU, and the United States requested information from China to explain its technology transfer regime and address other areas of concern as well. In the last review of China in 2011, Japan specifically noted its concern that the TIER contains discriminatory provisions as to the treatment of foreign licensors when compared to their domestic counterparts.²⁹⁴

Japan continues to raise concerns about the system in China for regulating importation of technology.²⁹⁵ In its 2016 Annual Compliance Report, Japan's Ministry of Economy, Trade and Industry (METI) devoted a section of its report on China specifically to the discriminatory articles of the TIER, including Articles 24, 27, and 29. METI notes that "[i]n many cases of technology import and export subject to the [TIER], foreign companies are assumed to be the parties providing the technology" and that therefore the "mandatory provisions [of the TIER] are applied only to foreign companies providing the technology and therefore can be a measure that discriminates between Chinese and foreign technology transfer."²⁹⁶

Foreign stakeholders also have raised concerns. The European Union Chamber of Commerce in China concluded in its "Intellectual Property Rights Working Group Position Paper 2016/2017"

²⁹⁴ China's only response to these criticisms was that there are no discriminatory regulations in the TIER. For a summary of the 2011 TRIPS Council meeting, see the 2016 report of the Ministry of Economy, Trade and Industry (METI) of Japan, THE 2016 REPORT ON COMPLIANCE BY MAJOR TRADING PARTNERS WITH TRADE AGREEMENTS - WTO, EPA/FTA AND IIA [*hereinafter* "2016 Report on Compliance"] 67 (2016), available at http://www.meti.go.jp/english/report/data/2016WTO/pdf/01_01.pdf.

²⁹⁵ See 2016 REPORT ON COMPLIANCE at 64-67.

²⁹⁶ 2016 REPORT ON COMPLIANCE at 65.

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that due to TIER, “parties to a cross-border technology transfer contract are not allowed to freely negotiate clauses concerning the ownership of subsequent developments or the liability for infringement of third parties rights....[A]s a consequence, [TIER] interfere[s] with the needs of Chinese and foreign companies for effective technology trade mechanisms.”²⁹⁷ In its position paper for 2017/2018, the Chamber recommended that Article 27 of the TIER be deleted.²⁹⁸

D. China's Acts, Policies, and Practices are Discriminatory

The above articles of the TIER and the JV Regulations constitute discriminatory acts, policies, and practices of China.²⁹⁹ The TIER and JV Regulations put foreign technology importers, including U.S. entities, at a disadvantage relative to their domestic Chinese counterparts because the TIER and JV Regulations impose additional restrictions on importers of foreign technology and their use and enjoyment of their rights in technology, including but not limited to rights in intellectual property.³⁰⁰ Through these restrictions, U.S. technology importers into China often are forced to grant ownership or usage rights to valuable intellectual property to domestic Chinese entities. At the same time, the licensing restrictions result in benefits for the Chinese counterparty to those forced arrangements.³⁰¹

1. Justifications for Discrimination

In this Section 301 investigation, USTR received submissions and testimony stating that the licensing restrictions in China are necessary to protect Chinese companies, which are in a “weak position” in technology transfer negotiations and contracts.³⁰² Other submissions stated that

²⁹⁷ EUROPEAN CHAMBER IN CHINA, INTELLECTUAL PROPERTY RIGHTS WORKING GROUP POSITION PAPER 2016/2017 87, available at <http://www.europeanchamber.com.cn/documents/download/start/en/pdf/429>.

²⁹⁸ See EUROPEAN CHAMBER IN CHINA, INTELLECTUAL PROPERTY RIGHTS WORKING GROUP POSITION PAPER 2017/2018 89, available at <http://www.europeanchamber.com.cn/documents/download/start/en/pdf/545>.

²⁹⁹ See NFTC, *Submission, Section 301 Hearing 7* (Sept. 28, 2017) (“This lack of freedom of contract [under art. 24 of the TIER] discriminates against overseas licensors....”); US–CHINA BUSINESS COUNCIL [hereinafter “USCBC”], *Submission, Section 301 Hearing 10* (Sept. 28, 2017).

³⁰⁰ NFTC, *Submission, Section 301 Hearing 6* (Sept. 28, 2017) (“The Regulations on the Administration of the Import and Export of Technology impose greater risks and liabilities on foreign technology licensors than China’s Contract Law imposes on domestic licensors.”).

³⁰¹ ITIF, *Submission, Section 301 Hearing 16* (Oct. 25, 2017) (“In summary, China imposes onerous restrictions on foreign parties involved in technology licensing activities in China which disadvantages foreign parties to the benefit of the Chinese counterparty.”).

³⁰² See Yang Guohua, *Submission, Section 301 Hearing* (Sept. 28, 2017) (“The relevant provisions of China’s *Regulation on Technology Import and Export Administration* are well-founded. The provisions are intended to safeguard the legitimate rights and interests of the licensees who have a weak position in international technology transfer negotiations, as similar laws and policies of other countries do in such circumstances.”); CCOIC, *Submission, Section 301 Hearing 63–4* (Sept. 28, 2017) (“In the context of cross-border technology transfer, the status of the licensor from developed countries and licensee from developing countries in a negotiation is usually unequal, often greatly...the *Regulations* are based on the same principle, which is to redress the imbalance of powers leading to imbalance of interests and to protect the rights of the licensee having a weak negotiation position.”).

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licensing negotiations and contracts are based on market conditions without interference from China³⁰³ and that the TIER does not favor Chinese companies.³⁰⁴

Other submissions stated that licensing restrictions like the TIER could not constitute a problem for U.S. industry because there were no legal cases brought in China based on the TIER.³⁰⁵ These submissions do not account for the continuing existence of the TIER (as well as the JV Regulations) in China and the effects of such restrictions on contract negotiations for U.S. technology owners.³⁰⁶ These concerns increase when a company has valuable intellectual property and other proprietary information that may be affected by China's licensing restriction regime.³⁰⁷ Moreover, none of the submissions justifying the discriminatory policies addressed how such a licensing regime meets a national treatment standard. National treatment means that a country (like China) accords to the nationals of other countries (like the United States) treatment that is no less favorable than that it accords to its own nationals with regard to the policies at issue. Instead, the submissions appear to implicitly acknowledge that China has discriminatory acts, policies, and practices concerning technology import contracts by justifying their existence.

Section 301 defines acts, policies, and practices that are discriminatory to "include, when appropriate, any act, policy, and practice which denies national or most-favored nation treatment to United States goods, services, or investment."³⁰⁸ Technology transfer agreements as defined by the TIER and the JV Regulations in China cover U.S. goods, service, or investment as related to the licensing and importing of U.S.-owned technology into China when compared to the treatment of domestic licensing of Chinese goods, services, or investment.

The TIER and JV Regulations place U.S. technology owners at a disadvantage relative to their Chinese counterparts when licensing technology into the Chinese market. The disparate treatment is effectively based on nationality, resulting in discrimination under Section 301.

³⁰³ See CCCME, *Submission, Section 301 Hearing 9* (Oct. 23, 2017) (alleging that "contracts are concluded according to companies' independent willingness. Chinese governments at all levels neither participate nor intervene in any of those business decisions or activities...The intellectual property licensing or technology negotiations are carried out based on market conditions by Chinese companies and U.S. companies."); CCOIC, *Submission, Section 301 Hearing 64* (Sept. 28, 2017).

³⁰⁴ CCCME, *Submission, Section 301 Hearing 10* (Oct. 23, 2017).

³⁰⁵ *E.g.* CCCME, *Submission, Section 301 Hearing 5* (Oct. 23, 2017) ("Over the past five years, however, CCCME received neither dispute nor complaints related to intellectual property and technology transfer.").

³⁰⁶ USCBC, *Submission, Section 301 Hearing 10* (Sept. 28, 2017) ("China's JV requirements and foreign equity limitations create an unequal negotiation for companies...Elimination of these policies would create a meaningful change in companies' ability to negotiate market-based terms for their IP and technology in China.").

³⁰⁷ *Id.* at 3 ("In USCBC's recent survey, most companies report that they are concerned about transferring their technology to China, regardless of the circumstances, because of concerns about the protection of intellectual property rights and proprietary information, as well as concerns about enforcing technology licensing agreements.").

³⁰⁸ 19 U.S.C. § 2411(d)(5).

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2. Acts, Policies, and Practices of Other Countries

In addition, USTR received submissions regarding the acts, policies, and practices of other trading partners relating to licensing and technology transfer, including submissions regarding the technology licensing regime in the United States. None of the cited acts, policies, or practices in comments submitted to USTR was the same as or similar to those of China. Instead, these very different examples highlight that the acts, policies, and practices of China in technology licensing discriminate against importers of foreign technology, including U.S. entities.

USTR received comments and testimony asserting, without support or discussion, that the *PRC Contract Law* provisions regarding technology transfer “equally apply to domestic and foreign invested companies without favoring either group.”³⁰⁹ As discussed above in Section III.B.1, the *PRC Contract Law* does not equally apply to domestic and foreign companies.³¹⁰ A Chinese company seeking to transfer technology within China can take full advantage of the provisions of the *PRC Contract Law*, while a U.S. technology owner seeking to transfer technology into China must adhere to the adverse terms imposed by TIER or the JV Regulations.³¹¹

Some submissions characterized other indemnity clauses in international codes and national laws as similar to those in the TIER. For example, two submissions highlighted language from the *Draft International Code of Conduct on the Transfer of Technology* (Draft Code), a United Nations text.³¹² Article 24 of TIER states in relevant part that “[w]here any of the lawful interests of any other person is infringed upon, the liabilities shall be borne by the licensor. Chapter 5, Paragraph.4, Romanette vi (Rights to the technology transferred) of the Draft Code states that “[t]he technology supplier's representation that on the date of the signing of the agreement, it is, to the best of its knowledge, not aware of third parties' valid patent rights or similar protection for inventions which would be infringed by the use of the technology when used as specified in the agreement....” The Draft Code, drafted over thirty years ago, does not address indemnification for future liability, which is what is required by Article 24 of TIER. Instead, the Draft Code addresses a warranty issue regarding known past infringement at the time the contract is signed.³¹³ The TIER addresses all indemnification issues, not just past warranties as the Draft Code addresses.

³⁰⁹ CHINA GENERAL CHAMBER OF COMMERCE – USA [hereinafter “CGCC”], *Submission, Section 301 Hearing* (Sept. 28, 2017). The CGCC submission adds that “[i]n addition to the Contract Law, the Regulations on Technology Import and Export Administration of the People’s Republic of China (passed in 2001) have additionally bolstered the protection of technology transfer, licensing, ownership and indemnity in cross border transactions,” but does not include information as to how the TIER bolsters such protections nor how the TIER’s separate regime for foreign technology transfers works alongside the *PRC Contract Law*. *Id.* 14-5.

³¹⁰ ITIF, *Submission, Section 301 Hearing* 15 (Oct. 25, 2017) (“CCCME...holds that TIER’s relevant Articles 24 and 27 are ‘neutral in nature.’ Yet they are not, for CCCME omits that the articles only apply in a ‘technology import contract.’”).

³¹¹ *See id.* (“CCCME contends that these provisions are ‘neutral in nature’....But this fails to rebut or address the real issue at hand, for it omits the fact that both articles [24 and 27 of TIER] only apply ‘in a technology import contract’ but do not hold with regard to a technology license contract.”).

³¹² CCCME, *Submission, Section 301 Hearing* 10 (Oct. 23, 2017); CCOIC, *Submission, Section 301 Hearing* 61–2 (Sept. 28, 2017).

³¹³ ITIF, *Submission, Section 301 Hearing* 15 (Oct. 25, 2017) (“The unaware-of-dominant-patent fundamentally differs from TIER Article 24’s ‘licensor shall bear liability.’”).

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Instead of adopting the Draft Code, certain Members like China and the United States have adopted the Convention on Contracts for the International Sale of Goods, which includes a provision expressly providing for the freedom of contract around such terms. The Convention does include a related warranty provision that a seller of goods “must deliver goods which are free from any right or claim of a third party based on industrial property or other intellectual property” in Article 42, but the Convention also provides in Article 6 that parties “may...derogate from or vary the effect of any of [the Convention] provisions.” A similar freedom of contract provision is incorporated into the “Successful Technology Licensing” publication of the UN’s World Intellectual Property Organization (WIPO). WIPO, of which China and the United States are also members, provides guidance through its Successful Technology Licensing document, which recognizes the “legal complexity” of terms regarding issues like indemnity and the importance of parties being able to freely negotiate such terms. In its Successful Technology Licensing, WIPO makes clear that “there is no set answer” and “nothing is ‘standard’ or ‘customary.’” These freedom to contract provisions in the UN Convention and the WIPO document are reflected in Article 353 of the *PRC Contract Law*, but the TIER conflicts for U.S. technology importers into China.

Some submitters asserted that additional relevant laws of trading partners, including the United States, address indemnification, but the submitters failed to provide supporting legal analysis for such allegations.³¹⁴ USTR was unable to analyze unsupported allegations such as these, particularly when the submitters were provided an opportunity during the hearing to respond to these questions and chose not to do so in the hearing or afterwards in written submissions during the rebuttal comment period.³¹⁵

For example, a submission identified the Philippines as having similar indemnification and improvement ownership clauses to China in the Voluntary Licensing chapter of the *Intellectual Property Code of the Philippines* (Republic Act No. 8293).³¹⁶ However, the cited provisions of the Philippine law are not similar to the Chinese regime under the TIER.

As discussed above, the TIER in China requires a technology importing licensor to be responsible for all liabilities resulting from use of the technology provided “[w]here any of the

³¹⁴ For example, the China Intellectual Property Law Society submitted that German case law and the U.S. Uniform Commercial Code both included similar rules to the TIER, but did not cite to any provision in either that required foreign licensors to indemnify domestic licensees for all infringement liability. China Intellectual Property Law Society [hereinafter “CIPL”], *Submission, Section 301 Hearing* 80–1 (Sept. 27, 2017). Instead, CIPL only cited German case law and the U.S. Uniform Commercial Code with regard to express and implied warranty language for goods in Germany and the United States regarding known defects of products. Jin Haijun, CIPL, *Testimony, Section 301 Hearing* 140–1 (Oct. 10, 2017).

³¹⁵ E.g. Jin Haijun, CIPL, *Testimony, Section 301 Hearing* 140–1 (Oct. 10, 2017) (“We provided the explanation of your question in our written comments...We give some examples like the judgment in Germany and the UCC in the United States and the draft code in the United Nations.”); John Tang, DHH WASHINGTON DC LAW OFFICE P.C. [hereinafter “DHH”], *Testimony, Section 301 Hearing* 164 (Oct. 10, 2017) (responding that “I believe in our supplemental comments, we will address your answer in a more complete way” regarding questions about TIER) *compare with* DHH, *Submission, Section 301 Hearing* 4 (Oct. 23, 2017) (“In particular, China does not have any laws, rules or regulations that force foreign investors to transfer their technology. Should such situations arise, it would be an agreement among corporations subject to market conditions, instead of by government interference.”).

³¹⁶ CCOIC, *Submission, Section 301 Hearing* 62 (Sept. 28, 2017).

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lawful interests of any other person is infringed upon.”³¹⁷ The cited Philippine law states that there is a *prima facie* presumption that an adverse effect on competition and trade arises for technology transfer arrangements that “exempt the licensor for liability for non-fulfilment of his responsibilities under the technology transfer arrangement and/or liability arising from third party suits brought about by the use of the licensed product or the licensed technology.” Given that it is a presumption, the Philippine measure significantly differs from the TIER’s broad indemnification requirement. Additionally, there is an exception to the presumption under Philippine law for situations listed under Section 91 of the law, which include technology transfer arrangements that are “exceptional or meritorious cases where substantial benefits will accrue to the economy, such as high technology content, increase in foreign exchange earnings, employment generation....” The submission fails to account for the exception cited in the section, that the presumption applies “[e]xcept in cases under Section 91 [of the Intellectual Property Code].” Section 91 of the Intellectual Property Code of the Philippines specifically permits entities to seek exemptions from the cited Sections 87.14 and 87.16, including in cases “where substantial benefits will accrue to the economy, such as high technology content.” Most importantly, the Philippine law appears to apply to all technology transfer arrangements under Philippine law, whereas the Chinese TIER provision only applies to importers of foreign technology, such as U.S. industry.

For the ownership clause, Article 27 of the TIER requires that improvements to imported technology belong to the party making the improvement. As discussed above in Section III.B.3, the obligation in Article 27 means that Chinese parties to technology importing contracts have the automatic right to any improvements made by those same parties without negotiating terms with their U.S. partners. The cited Philippine law³¹⁸ in Section 87.6 states that there is a *prima facie* presumption that technology transfer arrangements that “obligate the licensee to transfer for free to the licensor the inventions or improvements that may be obtained through the use of the licensed technology” have an adverse effect on competition and trade. The TIER requires that all improvements made by a licensee vest with that licensee, not that there is a *prima facie* presumption of adverse effect on competition and trade where a licensee must transfer any improvements for free, as set out in the Philippine intellectual property law. Also, and as with Section 87.14, there is an exception to the presumption under Philippine law for situations listed under Section 91 of the same law, which include technology transfer arrangements that are “exceptional or meritorious cases where substantial benefits will accrue to the economy, such as high technology content, increase in foreign exchange earnings, employment generation....” Similarly, the Philippine law appears to apply to all technology transfer arrangements under Philippine law, whereas the Chinese TIER provision only applies to importers of foreign technology, such as U.S. industry.

USTR also received statements that the intellectual property regime in Vietnam is similar to the TIER.³¹⁹ However, just as for the Philippine system, Vietnam does not have a provision like Article 27 of the TIER in China. The regime in Vietnam addresses contracts that require licensees to transfer improvement made by the licensee free of charge to licensors. Article 144.2(a) of Vietnam’s Law on Intellectual Property Law states that “an industrial property object

³¹⁷ TIER, art. 24.

³¹⁸ CCOIC, *Submission, Section 301 Hearing* 63 (Sept. 28, 2017).

³¹⁹ CCOIC, *Submission, Section 301 Hearing* 63 (Sept. 28, 2017).

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license contract must not have provisions which unreasonably restrict the right of the licensee.” Specific examples include “[p]rohibiting the licensee to improve the industrial property object other than marks” and “compelling the licensee to transfer free of charge to the licensor improvements of the industrial property object made by the licensee or the right of industrial property registration or industrial property rights to such improvements.” However, the TIER in China forbids the parties from freely contracting as to how improvements are allocated between the parties, taking into consideration that the technology at issue was provided by the licensor in the first place.³²⁰

Similar submissions failed to address whether any of these cited provisions only apply to foreign technology owners and provide different treatment for domestic technology transfers, as is the regime in China. All of the so-called “similar” legal and guidance provisions in other countries and international fora do not solely apply to imported technology transfers, as the TIER does in China, but instead apply equally to all technology transfers in licensing contracts.

USTR received comments stating that U.S. companies are not treated differently under the TIER as compared to Chinese domestic companies.³²¹ As explained above in Section I.B.2 *et seq.* and Section I.D.1, this is not the case. One submission states that “as long as the patent on the technology is still valid or the technology remains subject to confidentiality, the use of the technology by the licensee still requires licensing by the licensor” under the TIER.³²² Such comments do not account for the other requirements of the licensing regime in China, including the JV Regulations that, among other things, authorize the licensee to use the technology without compensation after the conclusion of the agreement. Other comments stated without citations that the Chinese contract law system “originated from those in major European countries (such as Germany) and the law has evolved into a very similar one to its U.S. counterpart.”³²³ Assertions of such a general nature are not responsive to the concern articulated above regarding the differential and discriminatory treatment of U.S. and other foreign technology owners relative to Chinese counterparts. The submitters’ failure to provide citations to the asserted relevant U.S. counterpart contract provisions precludes USTR from concluding such statements are sound and supported by law. Moreover, no submission addressed the fact that the contract laws of the United States do not provide different treatment for domestic transfers of technology versus foreign imported transfers of technology.

USTR did not receive any submissions establishing that the United States or any third country has enacted any act, policy, or practice similar to the JV Regulations.

E. China's Acts, Policies, and Practices Burden U.S. Commerce

As discussed earlier under Section II.E., China's acts, policies, and practices regarding restrictions on technology transfer — including licensing and other technology-related

³²⁰ See TIER, art. 27.

³²¹ See CCCME, *Submission, Section 301 Hearing 10* (Oct. 23, 2017) (alleging that “these two provisions [arts. 24 and 27 of the TIER] are neutral in nature.... Either Chinese companies or U.S. companies can be the licensor and the party who has made the improvement.”); CCCME, *Submission, Section 301 Hearing 7* (Oct. 23, 2017) (asserting without citations that “enterprises usually agree on the ownership of improved technology”).

³²² CCOIC, *Submission, Section 301 Hearing 62* (Sept. 28, 2017).

³²³ CGCC, *Submission, Section 301 Hearing §2(C)* (Sept. 28, 2017).

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negotiations for U.S. entities — clearly burden U.S. commerce. Acts, policies, and practices that burden U.S. commerce include licensing requirements that result in discrimination against U.S. technologies,³²⁴ as well as acts, policies, and practices that do not adequately protect U.S. intellectual property rights.³²⁵ The licensing restrictions described in Section III.B on U.S. entities clearly meet these standards because they deprive U.S. entities from benefiting from their innovative technology that has been transferred into China under a discriminatory licensing regime.³²⁶

³²⁴ See *Initiation of Section 302 Investigation and Request for Public Comment: Japan Market Access Barriers to Agricultural Products*, 62 Fed. Reg. 53,853 (Oct. 16, 1997); *Petition of National Cannery Association*, 40 Fed. Reg. 44,635 (Sept. 29, 1975).

³²⁵ See *Termination of Action: Protection of Intellectual Property Rights by the Government of Honduras*, 63 Fed. Reg. 37,943 (June 30, 1998).

³²⁶ WILEY REIN LLP, *Submission, Section 301 Hearing 11* (Sept. 28, 2017) (“Chinese companies would be able to employ ‘winner-take-all’ strategies to keep U.S. companies from regaining market share. Therefore, it is clear that the Chinese government’s action burden and restrict U.S. commerce.”).

IV. Outbound Investment

A. Introduction

Over the past decade, China's outbound foreign direct investment (OFDI) has grown at a rapid rate.³²⁷ A longstanding focus of China's OFDI has been the acquisition of mineral deposits and other natural resource assets, principally in developing regions such as Africa and Latin America.³²⁸ Yet, as China's OFDI flows have increased, technology-focused investments have become more prevalent, particularly in the United States and Europe.³²⁹

Various motives inform China's outbound investment behavior. Under the general, market-based theory of foreign direct investment (FDI), foreign investors seek (1) market expansion, (2) efficiency gains, and/or (3) resources (broadly defined to include natural resources and other strategic assets).³³⁰ These motives also apply to an extent in China's case, particularly with respect to natural resource investments that aim to mitigate China's reliance on resource imports.³³¹

³²⁷ Thilo Hanneman, Daniel H. Rosen, RHODIUM GROUP, CHINESE INVESTMENT IN THE UNITED STATES: RECENT TRENDS AND THE POLICY AGENDA 6 (Dec. 2016) (stating that, "The rapid growth of outbound foreign direct investment (FDI) by firms from China is changing the patterns of global capital flows. Chinese FDI flows grew at an average annual rate of 27 percent over the past decade, from \$3 billion in 2005 to \$123 billion in 2015."). For a definition of FDI, see Shun Chiao Chang, *The Determinants and Motivations of China's Outward Foreign Direct Investment: A Spatial Gravity Model Approach*, 43 GLOBAL ECON. REV. 260 (2014) ("'Foreign direct investment' is the category of international investment that reflects the objective of a resident entity in one economy ('direct investor' or parent enterprise) to obtain a 'lasting interest' and control in an enterprise resident in another economy ('direct investment enterprise'). The two criteria incorporated in the notion of a 'lasting interest' are the existence of a long-term relationship between the direct investor and the enterprise, and the significant degree of influence that gives the direct investor an effective voice in the management of the enterprise.").

³²⁸ See, e.g., Ernst & Young data for the period 2010-2014 shows that Chinese firms transacted a total of 223 M&A deals in energy and mining, totaling \$143 billion, and 54 M&A deals in agribusiness and food, totaling \$16.7 billion. ERNST & YOUNG, RIDING THE SILK ROAD: CHINA SEES OUTBOUND INVESTMENT BOOM 7-11 (Mar. 2015).

³²⁹ Thilo Hanneman, Daniel H. Rosen, RHODIUM GROUP, CHINESE INVESTMENT IN THE UNITED STATES: RECENT TRENDS AND THE POLICY AGENDA 6 (Dec. 2016) (stating that, "Initially focused on extractive sectors in developing countries, today Chinese FDI flows increasingly to advanced economies where technology, brands, and sophisticated manufacturing assets are abundant."); see also ERNST & YOUNG, RIDING THE SILK ROAD: CHINA SEES OUTBOUND INVESTMENT BOOM 7-11, 15-16 (Mar. 2015) ("European countries, especially the developed ones, are increasingly sought after by Chinese investors for their advanced technology and expertise, well-accepted and recognized brands and mature marketing networks. [...] The industrial, [technology, media, and telecommunications] and automotive sectors are favorites for Chinese investors.").

³³⁰ For a general theory of FDI motives (often referred to as the "eclectic paradigm"), John H. Dunning, *The Eclectic Paradigm of International Production: A Restatement and Some Possible Extensions*, 19 J. OF INT'L BUS. STUDIES 1-31 (1988).

³³¹ Yi Zhang, Hein Roelfsema, *Unravelling the Complex Motivations behind China's Outward FDI*, 19 J. OF THE ASIA PACIFIC ECONOMY 92 (2013) ("The third pattern is that host country resources, including natural resources and strategic assets, are of growing importance in attracting China's outward FDI. Many Chinese firms specialize in mass production which involves natural resource intensive processes. Nevertheless, natural resources per capita in China are only 20 percent–25 percent of the world's average level (Guo, 1996). To secure supplies for domestic firms, the outward FDI has been used to acquire scarce natural resources such as energy, petroleum, and minerals (Wu and Sia 2002). For example, over years Chinese multinationals have invested in large projects to exploit oil in countries such as Algeria, Angola, Kenya, Nigeria, and Sudan; copper in Congo and Zambia, as well as iron ore in Gabon. With the fast expansion of the Chinese economy, in recent years there is an increasing demand for natural resources to support domestic economic growth. This path thereby leads to a more urgent need for conducting

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But as numerous studies have noted, China's OFDI is also driven by non-market factors. These factors stem from the Chinese government's extensive intervention – in the Chinese economy in general, and in foreign investment in particular – to achieve industrial policy objectives.

- The U.S. Chamber of Commerce observed in a 2017 report:

In several [Made in China 2025] sectors, the technological gap between domestic and foreign competitors is significant, and closing that gap would require extended timelines and high levels of financial commitment that could stress budgets. To accelerate the learning process, the [Chinese] state appears to be supporting acquisition strategies of Chinese state-owned and state-supported companies tied to [Made in China 2025] priority sectors.³³²

- The European Union Chamber of Commerce in China states in a 2017 report:

Over the course of 2015 and 2016, an unprecedented wave of outbound investments into firms in Europe and elsewhere in industries of relevance to [Made in China 2025] have either been successfully completed or attempted. Significantly, many of these investments have been in areas where European business is unable to make equivalent investments in China, and have also enabled Chinese firms to access technology, brands and management expertise that they would not otherwise have been able to acquire. In some industries, such as semiconductors, attempted and completed investments have spanned entire industrial supply chains.³³³

- The 2017 European Commission report on Chinese economic distortions states:

A clear acceleration of Chinese outbound investments in Europe (and elsewhere) is noticeable in the last few years [...] Most of these overseas acquisitions have the direct backing of the State. Through that state-support process, Chinese [state-owned enterprises (SOEs)] gain market share, build additional capacities [and] capital assets and gain access to inputs.³³⁴

- The Mercator Institute for China Studies, a leading German think tank, states in a 2016 report:

natural-resource-seeking FDI over time.”). *See also* Shun Chiao Chang, *The Determinants and Motivations of China's Outward Foreign Direct Investment: A Spatial Gravity Model Approach*, 43 GLOBAL ECON. REV. 244, 260 (2014). The study, which reviews China's outbound investment in 138 countries between 2003 and 2009, finds that the “fuel extraction motive plays a key role in China's OFDI.”

³³² U.S. CHAMBER OF COMMERCE [*hereinafter* “U.S. Chamber”], MADE IN CHINA 2025: GLOBAL AMBITIONS BUILT ON LOCAL PROTECTIONS 22 (2017).

³³³ EUROPEAN UNION CHAMBER OF COMMERCE IN CHINA [*hereinafter* “E.U. Chamber”], CHINA MANUFACTURING 2025: PUTTING INDUSTRIAL POLICY AHEAD OF MARKET FORCES 18-19 (2017).

³³⁴ EUROPEAN COMMISSION, COMMISSION STAFF WORKING DOCUMENT ON SIGNIFICANT DISTORTIONS IN THE ECONOMY OF THE PEOPLE'S REPUBLIC OF CHINA FOR THE PURPOSES OF TRADE DEFENCE INVESTIGATIONS 426 (SWD(2017)483 final/2 (Dec. 20, 2012).

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[To] speed up China's technological catch-up and to leapfrog stages of technological development, Chinese companies are acquiring core technologies through investment abroad. In itself, this is neither surprising nor objectionable. However, *China's technology acquisitions are partly supported and guided by the state*. China pursues an outbound industrial policy with government capital and highly opaque investor networks to facilitate high-tech acquisitions abroad. This undermines the principles of fair competition: China's state-led economic system is exploiting the openness of market economies in Europe and the United States. Chinese high-tech investments need to be interpreted as *building blocks of an overarching political programme*. It aims to systematically acquire cutting-edge technology and generate large-scale technology transfer.³³⁵

- Rhodium Group, in a 2016 study on Chinese investment in the United States, observes that, while it is difficult to draw clear-cut conclusions concerning aggregate FDI data, “Chinese government policies are important variables in FDI patterns,” and that “the surge in global takeover offers in the semiconductor industry is the most notable example of the industrial policy-outbound investment nexus.”³³⁶
- Ernst and Young, in a 2016 annual report on China's outbound investment, states that “[t]he Chinese government is actively improving the strategy of outbound investment to facilitate Chinese enterprises to ‘Go Global’ by launching fiscal and financial support policies and establishing cooperation platforms.”³³⁷
- Numerous academic studies note the significance of state involvement in shaping China's OFDI.³³⁸ For example, in a widely-cited study on the determinants of China's outbound

³³⁵ Jost Wübbecke, et. al., MERCATOR INSTITUTE FOR CHINA STUDIES [*hereinafter* “MERICS”], *MADE IN CHINA 2025: THE MAKING OF A HIGH-TECH SUPERPOWER AND CONSEQUENCES FOR INDUSTRIAL COUNTRIES* 7-8 (Dec. 2016) (emphasis added).

³³⁶ Thilo Hanneman, Daniel H. Rosen, RHODIUM GROUP, *CHINESE INVESTMENT IN THE UNITED STATES: RECENT TRENDS AND THE POLICY AGENDA* 7 (Dec. 2016) (“Government policies impact patterns in Chinese companies’ outbound investment both indirectly, through economic policy, and directly through incentives and policies aimed at promoting overseas investment in specific industries, technologies, and geographies.”); *see also* RHODIUM GROUP [*hereinafter* “Rhodium”], *Submission, Section 301 Hearing* 4 (Sept. 28, 2017).

³³⁷ ERNST & YOUNG, *GOING OUT – THE GLOBAL DREAM OF A MANUFACTURING POWER: 2016 CHINA OUTBOUND INVESTMENT OUTLOOK* 7 (Mar. 2016) (“In 2015, China began to comprehensively implement its ‘One Belt One Road’ strategy. It also introduced the ‘Made in China 2025’ plan and ‘Guiding Opinions on Promoting International Cooperation in Industrial Capacity and Machinery Manufacturing’, aiming at encouraging the manufacturing industry to ‘Go Global’ and to develop international capacity cooperation. These efforts have already taken some effect: In 2015, Chinese enterprises invested USD 14.8 billion along the Belt and Road territories, up 18.2 percent from 2014; meanwhile the outward FDI from the machinery manufacturing industry has grown by 154.2 percent.”).

³³⁸ *See, e.g.*, Alvaro Cuervo-Cazurra et al., *Government as Owners: State-owned Multinational Companies*, *J. OF INT’L BUS. STUDIES* (July 9, 2014); Lin Cui, Fuming Jiang, *State Ownership Effect on Firms’ FDI Ownership Decisions under Institutional Pressure: A Study of Chinese Outward-Investing Firms*, 43 *J. OF INT’L BUS. STUDIES* 264-284 (2012); Chengqi Wang, et. al., *Exploring the Role of Government Involvement in Outward FDI from Emerging Economies*, 43 *J. OF INT’L BUS. STUDIES* 655-676 (2012); Luke Hurst, *Comparative Analysis of the Determinants of China’s State-owned Outward Direct Investment in OECD and Non-OECD Countries*, 19 *CHINA & WORLD ECONOMY* 74-91 (2011); Ping Deng, *Why Do Chinese Firms Tend to Acquire Strategic Assets in International Expansion*, 44 *J. OF WORLD BUS.* 74-84 (Jan. 2009).

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investment, Peter J. Buckley et al. argue for a “special theory of Chinese [OFDI]” that takes into account the degree to which China’s outbound investment is shaped by soft budget constraints afforded to outbound investors by state-owned financial institutions; pervasive state ownership of outbound investors;³³⁹ and the manner in which the Chinese government exerts control over the outbound investment approval process.³⁴⁰

USTR determines that the Chinese government directs and unfairly facilitates the systematic investment in, and acquisition of, U.S. companies and assets by Chinese companies, to obtain cutting-edge technologies and intellectual property (IP) and generate large-scale technology transfer in industries deemed important by state industrial plans. The role of the state in directing and supporting this outbound investment strategy is pervasive, and evident at multiple levels of government – central, regional, and local. The government has devoted massive amounts of financing to encourage and facilitate outbound investment in areas it deems strategic. In support of this goal, China has enlisted a broad range of actors to support this effort, including SOEs, state-backed funds, government policy banks, and private companies.

This section is structured as follows: Section IV.B provides a review of China’s outbound investment policies, and the various state-owned and state-supported actors that participate in outbound investment. The section considers the government’s principal initiatives to acquire foreign technology, including the “Going Out” strategy, and other levers that the government employs to channel and direct investment, such as its outbound investment approval system.

Section IV.C examines the ways in which this policy framework and approach have impacted Chinese investment in the United States. The section reviews aggregate data on investment flows, followed by a detailed analysis of Chinese acquisitions in seven sectors of the U.S. economy that illustrate China’s acts, policies, and practices: (1) aviation; (2) integrated circuits (IC); (3) information technology (IT) and electronics; (4) biotechnology; (5) industrial machinery and robotics; (6) renewable energy; and (7) automotive. The section ends by analyzing Chinese investment activities that target core innovation drivers for the U.S. economy in technology centers such as Silicon Valley.

Section IV.D provides a summary of findings: China has engaged in acts, policies, and practices that are unreasonable, and that burden U.S. commerce. The market-distorting acts, policies, and

³³⁹ Peter J. Buckley et al., *Determinants of Chinese Outward Foreign Direct Investment*, 38 J. OF INT’L BUS. STUDIES 501 (July 2007) (“Market imperfections may be transformed into ownership advantages by emerging economy firms (Buckley, 2004a). This ability may arise from a number of particular and interrelated imperfections: (1) state-owned (and state-associated) firms may have capital made available to them at below- market rates (e.g., in the form of soft budget constraints) [...] (2) inefficient banking systems may make soft loans to potential outward investors, either as policy or through inefficiency [...] (3) conglomerate firms may operate an inefficient internal capital market that effectively subsidizes FDI [...] There are good grounds for believing that all [...] of these imperfections exist in China. State-sponsored soft budget constraints make acquisition by Chinese enterprises a ‘normal’ mode of entering and penetrating a host economy.”).

³⁴⁰ Peter J. Buckley et al., *Determinants of Chinese Outward Foreign Direct Investment*, 38 J. OF INT’L BUS. STUDIES 503 (July 2007) (“Given the extent of state control of the Chinese economy (Scott, 2002), the institutional environment is likely to have had far-reaching and profound effects on the internationalisation decision of Chinese firms. [...] Because various agencies within the state administration have been required to approve each and every outward FDI project from China (pre- dominantly through the control of foreign exchange), this evolution is likely to have influenced strongly the development, strength and orientation of Chinese MNEs.”).

practices of the Chinese government in technology-focused sectors impose significant costs and risks on U.S. industry. They undermine the ability of U.S. technology companies to innovate and adapt, and threaten the long-term competitiveness of U.S. industry.

B. Policy and Regulatory Framework

1. Major Policies to Acquire Foreign Technology

a) *The “Going Out” Strategy*

A cornerstone of Chinese outbound investment is the “Going Out”³⁴¹ strategy. This strategy encourages Chinese companies to “go out” and invest abroad, and calls on the government to guide and facilitate this effort. The strategy, as originally conceived, seeks to remove obstacles to outbound investment³⁴² and provide targeted support for specific enterprises and sectors investing abroad.³⁴³ This strategy appears to have been first articulated in a 1997 speech by then President Jiang Zemin,³⁴⁴ and was enshrined in the *10th Five-year National Economic and Social Development Plan Outline (2001-2005) (10th Five-year Plan)*.³⁴⁵ In subsequent statements, the government affirmed the linkage between the “Going Out” strategy and technology acquisition. For example, at the 2004 “International Forum on the Going Out of Chinese Companies,” a high-ranking official from the Ministry of Commerce (MOFCOM) explained that, as one of seven

³⁴¹ English translation of Chinese term *zou chu qu*.

³⁴² Peter J. Buckley *et al.*, *Determinants of Chinese Outward Foreign Direct Investment*, 38 J. OF INT’L BUS. STUDIES 500 (July 2007) (“The process of accelerated outward investment liberalisation and growth can be traced from Deng Xiaoping’s tour of South China in 1992 through to the government-led ‘go global’ (*zou chu qu*) initiative, which was instigated in 1999. This initiative aims to promote the international competitiveness of Chinese firms by further reducing or eliminating foreign-exchange-related, fiscal and administrative obstacles to international investment (Sauvant, 2005)”).

³⁴³ Luke Hurst, *Comparative Analysis of the Determinants of China’s State-owned Outward Direct Investment in OECD and Non-OECD Countries*, 19 CHINA & WORLD ECONOMY 77 (2011) (“A ‘Go Global’ policy was unveiled in 1999. Its fundamental aim was to encourage ODI to support national exports, with the clear objective of pushing domestic firms to internationalize their activities as a means to acquire strategic resources and expand into foreign markets. The overarching goal was to increase the competitiveness of 180 corporate champions to facilitate their rise as true multinationals and enter the Fortune 500. Firms that were identified benefited from preferential tax concessions and political backing (VanWyk, 2009)”).

³⁴⁴ Jiang Zemin, Former General Secretary of the Communist Party of China, Implement the ‘Drawing In’ and ‘Going Out’ Combined Opening Up Strategy [Chinese] (Dec. 24, 1997), available at <http://history.mofcom.gov.cn>.

³⁴⁵ *10th Five-year National Economic and Social Development Plan Outline* (adopted by the NPC on Mar. 15, 2001). The *10th Five-year Plan* specifically references the “Going Out” strategy in the context of science and technology development. Part 1, Chapter 1, ¶ 5 states: “Adhere to Reform and Opening Up and progress in science and technology as the driving force. [...] We shall unwaveringly expand Opening Up, and while actively ‘drawing in’, implement the ‘Going Out’ strategy. Amplify implementing the strategy of scientific education, revitalize science and technology, and foster talent for a prosperous nation.” In furtherance of this policy, the *10th Five-year Plan* calls for the expansion of “areas, pathways, and modes for international economic and technology cooperation” and encourages enterprises to “utilize foreign knowledge resources, and establish research and development institutions and design centers overseas.” Likewise, the plan calls for a broad array of support measures to help Chinese companies engage in “multinational operations” to “implement internationalization development” (including outbound investment). The government should assist in several areas, including financing, insurance, foreign exchange, fiscal policy, laws, information services, and border entry and exit administration. The plan instructs authorities to “improve corporate governance structures of enterprises with outbound investments,” and standardize supervision and administration of outbound investment (Part 5, Ch. 17, § 4).

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aspects of “Going Out,” enterprises should “set up R&D centers in regions endowed with intensive science and technology” and “intensify international technical exchange and cooperation and improve their innovative capability and technology.”³⁴⁶

As discussed below, several recent policies flow from and support the “Going Out” strategy. For example:

- The State Council’s *Notice on Issuing Several Policies on Further Encouraging the Development of the Software and Integrated Circuit Industries* calls for supporting the “Going Out” strategy of enterprises in establishing foreign marketing networks and R&D centers to promote IC, software, and IT service exports.³⁴⁷
- The *Next-Generation Artificial Intelligence Development Plan*, released in July 2017, calls for a “Going Out” strategy that includes overseas mergers and acquisitions, equity investments, venture capital (VC), and establishment of research and development centers abroad.³⁴⁸
- The *Notice on Issuing “Made in China³⁴⁹ 2025” (Made in China 2025 Notice)*³⁵⁰ outlines a wide-ranging strategy for harnessing and promoting the acquisition of foreign technology through outbound investment, including “explor[ing] the use of industrial funds, state-owned capital dividends, and other channels to support the ‘Going Out’ of advantageous manufacturing capacity including high-speed rail, power generation equipment, automobiles, and engineering, so as to implement overseas investment acquisitions.”³⁵¹

China has also established the “Going Out” strategy as one element of the Introduce, Digest, Absorb, Re-innovate (IDAR) approach to technology assimilation (see Section I.C for further

³⁴⁶ See Karl Sauvant, *New Sources of FDI: The BRICs - Outward FDI from Brazil, Russia, India and China*, 6 J. OF WORLD INVESTMENT & TRADE 676-677 (2005) (“First, gradually increasing outward investment and develop overseas processing trade and overseas assembling trade. [...] Second, intensifying overseas cooperation of resource development. [...] Third, contracting overseas engineering projects. [...] The fourth aspect is to carry out overseas agricultural cooperation. [...] *The fifth aspect is to facilitate overseas science, technology and talent cooperation. Companies are guided to set up R&D centers in regions endowed with intensive science and technology. They should intensify international technical exchange and cooperation and improve their innovative capability and technology.* The sixth aspect is to elevate the level of foreign-related labor service cooperation. [...] The seventh aspect is to promote cooperation in the field of trade in services.”) (emphasis added).

³⁴⁷ *Notice on Issuing Several Policies on Further Encouraging the Development of the Software and Integrated Circuit Industries* § 4(21) (State Council, Guo Fa [2011] No. 4, issued Jan. 28, 2011).

³⁴⁸ *State Council Notice on Issuing the Next-Generation of Artificial Intelligence Development Plan* (State Council, Guo Fa [2017] No. 35, issued July 8, 2017). For full translation and analysis, see Graham Webster, et al., *China’s Plan to ‘Lead in AI: Purpose, Prospects, and Problems*, NEW AMERICA CYBERSECURITY INITIATIVE (Aug. 1, 2017), available at <https://www.newamerica.org/cybersecurity-initiative/blog/chinas-plan-lead-ai-purpose-prospects-and-problems/>.

³⁴⁹ The literal translation is “China manufacturing”, but “Made in China” is consistent with usage in English-language documents published by China’s official state-run news agency, *Xinhua News* and with colloquial usage.

³⁵⁰ *Notice on Issuing “Made in China 2025”* (State Council, Guo Fa [2015] No. 28, issued May 8, 2015). For a more detailed discussion on some of the broader policy goals of Made in China 2025, see Section I.C.

³⁵¹ *Made in China 2025 Notice* § 4, “Strategy Support and Guarantees,” § 4(7), “Further Expand Opening Up of Manufacturing Industries.”

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discussion of IDAR). This link is most clearly articulated in a 2006 document issued pursuant to the *National Medium- and Long-Term Science and Technology Development Plan Outline (2006-2020) (MLP)*,³⁵² and other policies which call on the government to “[g]uide enterprises that possess the conditions to ‘go out.’ Through the establishment of overseas research and development entities, fully utilize foreign science and technology resources, follow and study global advanced technology, and continually enhance the technological development and innovation capacity of Chinese enterprises.”³⁵³

b) International Cooperation and International Industrial Capacity

In support of the “Going Out” strategy, China has emphasized the need to promote “international cooperation,” a term that often refers to strategic outbound investments guided by state industrial policy. For example, the *Information and Communications Industry Development Plan (2016-2020)*,³⁵⁴ released by the Ministry of Industry and Information Technology (MIIT) in December 2016, calls for “continually exploring different modes of *overseas cooperation* including joint ventures, acquisitions, equity investments, and controlling equity investments.”³⁵⁵ The *Formal Announcement of Guidelines for the Development and Promotion of the Integrated Circuit Industry (IC Guidelines)*,³⁵⁶ released in 2014, calls for domestic IC companies to expand “*international cooperation*, consolidate international resources, and expand international markets.”³⁵⁷ The *Robotics Industry Development Plan (2016-2020) (Robotics Five-year Plan)*,³⁵⁸ under the heading “expand international exchange and cooperation,” states that the government should “develop *international exchange and cooperation*” across governments, industry associations, and enterprises, and “encourage enterprises to actively expand overseas markets, and *strengthen technology cooperation* [...]”³⁵⁹

Likewise, China recently has called for “international industrial capacity cooperation,”³⁶⁰ which was conceived as part of the “One-Belt One-Road” initiative launched in 2015.³⁶¹ This policy

³⁵² *Notice on Issuing the National Medium- and Long-Term Science and Technology Development Plan Outline (2006-2020)* (State Council, Guo Fa [2005] No. 44, issued Dec. 26, 2005); see also *Several Supporting Policies for Implementing the “National Medium- and Long-Term Science and Technology Development Plan Outline (2006-2020)”* (State Council, Guo Fa [2006] No. 6, issued Feb 7, 2006).

³⁵³ *Several Opinions on Encouraging Technology Introduction and Innovation and Promoting the Transformation of the Growth Mode in Foreign Trade* [hereinafter “IDAR Opinions”] § 3(10) (MOFCOM, NDRC, MOST, MOF, GAC, SAT, SIPO, SAFE, Shang Fu Mao Fa [2006] No. 13, issued July 14, 2006).

³⁵⁴ *Information and Communications Industry Development Plan (2016-2020)* (MIIT, Gong Xin Bu Gui [2016] No. 424, issued Dec. 18, 2016).

³⁵⁵ *Information and Communications Industry Development Plan* § 3(2)6, “Development Priorities” (emphasis added).

³⁵⁶ *Notice on Issuing Guidelines for the Development and Promotion of the Integrated Circuit Industry* (State Council, issued June 24, 2014).

³⁵⁷ *IC Guidelines* § 4(8) (emphasis added).

³⁵⁸ *Notice on Issuing Robotics Industry Development Plan (2016-2020)* (MIIT, NDRC, MoF, Gong Xin Bu Lian Gui [2016] No. 109, issued Mar. 21, 2016) (emphasis added).

³⁵⁹ *Robotics Five-year Plan* § 4(6).

³⁶⁰ English translation of Chinese term *guoji channeng hezuo*.

³⁶¹ *Belt and Road Basics*, HONG KONG TRADE DEVELOPMENT COUNCIL, <http://beltandroad.hktdc.com/en/belt-and-road-basics> (last visited Dec. 6, 2017) (“The Belt and Road Initiative refers to the Silk Road Economic Belt and 21st Century Maritime Silk Road, a significant development strategy launched by the Chinese government with the intention of promoting economic co-operation among countries along the proposed Belt and Road routes. The

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focuses on encouraging outbound investment in manufacturing industries to expand markets for Chinese goods and technologies. In addition, “international industrial capacity cooperation” encompasses possible arrangements by which Chinese companies can obtain technology from foreign entities –including acquisitions, various forms of equity investments, and JVs.

In May 2015, the State Council issued the *Guiding Opinion on Promoting International Industrial Capacity and Equipment Manufacturing Cooperation (International Cooperation Opinion)*,³⁶² which identifies 11 sectors as priorities for international expansion: (1) steel and nonferrous metals, (2) construction materials, (3) rail equipment, (4) power generation and infrastructure, (5) resource development, (6) textiles, (7) automotive, (8) information technology, (9) machinery, (10) aviation, and (11) shipbuilding.³⁶³ With respect to information and communications technology (ICT), the measure calls for “[p]romoting innovation upgrading” and “raising [...] international competitiveness.”³⁶⁴ To do this, authorities are directed to “[e]ncourage telecoms operating enterprises and Internet enterprises to *use methods, including mergers and acquisitions* and investments in infrastructure and facilities operations, to ‘Go Out’[...].”³⁶⁵

To facilitate this “Going Out” strategy, the *International Cooperation Opinion* calls for government support, including preferential financing through: (1) equity investment and other new forms of financing; (2) international use of the Renminbi (hereinafter Chinese Yuan or CNY) to facilitate transactions, with support from the state-owned policy banks Export-Import Bank of China (China Exim) and China Development Bank (CDB); (3) diversified funding sources, including low-cost access to funding through domestic fund-raising and preferential access to foreign exchange funds; (4) increases in equity investment resources through more use of state-backed funds, such as the Silk Road Fund; and, (5) export credit insurance.³⁶⁶

China appears to be implementing the “international industrial capacity cooperation” strategy on a large scale. China Exim has described “international industrial capacity cooperation” as a government policy that has informed its lending for outbound investment projects.³⁶⁷ Likewise, on its online “Going Out” Public Service Platform, MOFCOM manages a website dedicated to “international industrial capacity cooperation.”³⁶⁸ This website regularly publishes “industrial capacity statistical data,” which quantifies the growth of China’s outbound investment in “manufacturing industries” and, within that category, the share of outbound investment in

Initiative has been designed to enhance the orderly free-flow of economic factors and the efficient allocation of resources. It is also intended to further market integration and create a regional economic co-operation framework of benefit to all. The National Development and Reform Commission (NDRC) issued its *Vision and Actions on Jointly Building the Silk Road Economic Belt and 21st Century Maritime Silk Road* on 28 March 2015. This outlined the framework, key areas of co-operation and co-operation mechanisms with regard to the Belt and Road Initiative.”)

³⁶² *Guiding Opinion on Promoting International Industrial Capacity and Equipment Manufacturing Cooperation* (State Council, Guo Fa [2015] No. 30, issued May 13, 2015).

³⁶³ *International Cooperation Opinion* § 3(7-18).

³⁶⁴ *International Cooperation Opinion* § 3(15).

³⁶⁵ *International Cooperation Opinion* § 3(15).

³⁶⁶ *International Cooperation Opinion* § 6(32-36).

³⁶⁷ See EXPORT-IMPORT BANK OF CHINA, ANNUAL REPORT 2016 37 (2016) (“The Bank provided financial services to facilitate China’s major strategic plans, including [...] international industrial capacity cooperation.”).

³⁶⁸ “Going Out” Service Platform [Chinese], available at <http://fec.mofcom.gov.cn/article/tjgjenhz/>.

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“equipment manufacturing.”³⁶⁹ Moreover, Chinese media reports indicate that China has signed over 30 “international industrial capacity cooperation” agreements³⁷⁰ with foreign countries and launched outbound investments in a wide range of industries in pursuit of this policy.³⁷¹

2. The Chinese Outbound Investment Approvals System

The Chinese government also exercises control over outbound investment through an investment approval mechanism. As described in more detail below, the government retains considerable ability to influence investment decisions through its use of administrative procedures and foreign exchange controls.

By way of background, until the early 2000s, Chinese outbound investment was relatively rare. The government began to permit inbound FDI only in the 1980s, under the aegis of the “Reform and Opening Up Policy.” In the 1980s and 1990s, China’s outbound investment regime remained highly restrictive. Only a small number of enterprises – mostly SOEs – invested abroad during this period.³⁷²

Beginning in 2004, the government relaxed certain restrictions on outbound investment, while formalizing its outbound investment approval system in laws and regulations. An important foundation for this shift was the *Administrative License Law of the People's Republic of China*,³⁷³ which came into effect on July 1, 2004. The law draws a distinction between a set of items that may be and set of items that may not necessarily be subject to government approval,

³⁶⁹ *January-October 2017 Statistical Data on Industrial Capacity Cooperation* [Chinese], MINISTRY OF COMMERCE (Nov. 23, 2017), <http://fec.mofcom.gov.cn/article/tjgcnhz/tjsj/201711/20171102674823.shtml>.

³⁷⁰ Signatories are primarily developing countries, such as Kazakhstan, Egypt, and Brazil. These agreements generally entail cooperation on industrial projects in the foreign country with which China signs the agreement, financed primarily or entirely by China. For example, China and Brazil have established an “industrial capacity cooperation fund” with capital of \$20 billion, of which \$15 billion is provided by China. Sectors in which the fund will invest include advanced technology, among others. *China Has Signed Industrial Capacity Cooperation Agreements with 37 Countries* [Chinese], XINHUA NEWS, Sept. 8, 2017, available at http://news.xinhuanet.com/politics/2017-09/08/c_129699618.htm; Press Release, Permanent Secretariat of Form for Economic and Trade Co-operation between China and the Portuguese-Speaking Countries, US\$20-Billion Chinese-Backed Fund to Build Brazilian Industry Starts Next Week (May 26, 2017).

³⁷¹ *China Signs International Industrial Capacity Cooperation Agreements with Over 30 Countries* [Chinese], PHOENIX NEWS, May 12, 2017, available at <http://news.ifeng.com/a/20170512/510838270.shtml>. The report states, for example: “In the information technology industry, several solar PV companies have invested in solar PV station infrastructure and developed engineering, procurement, and construction full-package services in locations including the United States, Japan, Europe, South America, and Southeast Asia.”

³⁷² Thilo Hanneman, Daniel H. Rosen, RHODIUM, CHINESE INVESTMENT IN THE UNITED STATES: RECENT TRENDS AND THE POLICY AGENDA 66 (Dec. 2016) (“While China embraced inward foreign direct investment (FDI) to a far greater extent than most developing countries since the 1980s, it long prohibited its firms from investing overseas. For most of the first two decades of China’s economic reform period, Chinese companies were forbidden from investing overseas unless they had direct approval from the government. [...] The approval regime was modified several times but outbound FDI remained largely the domain of state-owned trading and technology companies.”); Peter J. Buckley et al., *Determinants of Chinese Outward Foreign Direct Investment*, 38 J. OF INT’L BUS. STUDIES 500 (July 2007) (“Since 1979, when ODI was formally permitted under the ‘Open Door’ policies, the internationalisation of Chinese firms has been tightly controlled by national and provincial government, either directly, by administrative fiat, or indirectly, via economic policy and other measures designed to advance the economic development agenda (Buckley et al., 2006)”).

³⁷³ *PRC Administrative License Law* (adopted by the NPC on Aug. 27, 2003, effective July 1, 2004).

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and codifies relevant regulatory procedures.³⁷⁴ In conjunction with this law, the State Council released a catalogue of all administrative approval items “absolutely necessary to be retained.”³⁷⁵ Also in July 2004, the State Council released a guiding decision on reforming investment approvals. The document recommends an aggregate reduction in approvals, but also the formulation of long-term economic development plans and investment guidance catalogues to channel investment into areas favored by the government.³⁷⁶ This legal and normative framework continues to inform China’s outbound investment approval system.

Several features of the outbound approval system afford Chinese authorities significant influence over outbound investment flows.

a) Formal Approval Authority

Individual government agencies have authority to approve important items relating to outbound investment:

- The National Development and Reform Commission (NDRC) has authority to “screen and approve”³⁷⁷ outbound investment projects involving overseas resource extraction or large amounts of foreign exchange, as well as the amount of foreign exchange used for outbound investment.³⁷⁸
- The State Administration of Foreign Exchange (SAFE), the arm of China’s central bank that administers foreign exchange, has authority to “examine and approve”³⁷⁹ the overseas transfer of foreign exchange for capital projects and to “screen and examine”³⁸⁰ the originating source and the overseas transfer of foreign exchange for overseas investment.³⁸¹
- MOFCOM has authority to “examine and approve” the establishment of enterprises overseas and to “examine and approve” participation in foreign contract bidding.³⁸²

³⁷⁴ *PRC Administrative License Law*, art. 12-14. art. 12 authorizes the government to maintain administrative approvals for a variety of reasons including, *inter alia*, “special activities that directly bear on national security, public security, macro-economic adjustment and control”; “vocations and trades that provide public services and directly relate to the public interest,”; “important equipment, facilities, products, articles that directly concern public security”; “the establishment of the enterprises or other institutions for which the subject qualifications need to be determined”; “other matters for which administrative licenses may be established in accordance with the laws and regulations”.

³⁷⁵ *Decision on Establishing Administrative License for the Administrative Screening and Approval Items Absolutely Necessary to Be Retained* [hereinafter “Approval Items Decision”], (State Council 2004 Order No. 412, issued June 29, 2004, effective July 1, 2004, amended Jan.29, 2009, further amended Aug. 25, 2016).

³⁷⁶ *State Council Decision on Investment System Reform* §§ 4(2) (State Council, Guo Fa [2004] No. 20, issued July 16, 2004).

³⁷⁷ English translation of Chinese term *shenpi*.

³⁷⁸ *Approval Items Decision*, Annex items 1 and 2.

³⁷⁹ English translation of Chinese term *hezhun*.

³⁸⁰ English translation of Chinese term *shenhe*.

³⁸¹ *Approval Items Decision*, Annex items 468, 487.

³⁸² *Approval Items Decision*, Annex items 188, 191.

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b) *The Investment Catalogue*

In July 2004, the State Council began to publish the *Catalogue of Investment Projects for Government Examination and Approval (Investment Catalogue)*, which informs both domestic and foreign investment approvals.³⁸³ The *Investment Catalogue*, since updated in 2013, 2014, and 2016, lists government approval requirements for investments in “high and new technology” and nine other sectors of the Chinese economy.³⁸⁴ It also specifies, in a general sense, which type and amount of outbound foreign investment is subject to approval or “filing-for-records” requirements with government departments under the State Council.

The 2016 edition of the *Investment Catalogue* provides that all outbound investments in “sensitive countries”³⁸⁵ and “sensitive sectors”³⁸⁶ require “examination and approval” by government departments under the State Council, and that all outbound investments “administered by the central government,” as well as all investments by “local enterprises” at or above \$300 million, require “filing-for-records”³⁸⁷ with government departments under the State Council.

The 2016 edition also refers to government-issued “development plans,” “industrial policies,” and “technology policies”³⁸⁸ as an “important basis”³⁸⁹ for enterprises engaging in investment projects.³⁹⁰

c) *MOFCOM and NDRC Approval Roles*

MOFCOM and NDRC maintain separate legal instruments to exercise approval and review authority over outbound investment. MOFCOM exercises its authority pursuant to the *Measures on Administering Overseas Investment (2014 MOFCOM Approval Measures)*.³⁹¹ The measure provides that investments in “sensitive countries” and “sensitive sectors” require “examination and approval” by MOFCOM.³⁹² All other investments are subject to “filing-for-records” requirements,³⁹³ which involve the submission of a form and corresponding paperwork. Upon

³⁸³ The first edition of the *Investment Catalogue* was appended to the *State Council Decision on Investment System Reform* (State Council, Guo Fa [2004] No. 20, issued July 16, 2004). *State Council Decision on Investment System Reform* § 3(1), also contains a notable provision that grants broad authority to maintain “government investment” in areas that affect “national security” or “fill gaps left by the market,” to expressly include “promoting science and technology advances and the industrialization of high and new technology.”

³⁸⁴ The 11 sectors are: (1) Agriculture and irrigation, (2) energy (3) transportation (4) IT industry (5) raw materials (6) machinery manufacturing (7) light industry and tobacco (8) high and new technology (9) urban construction (10) public services, (11) finance, (12) inbound FDI, and (13) OFDI.

³⁸⁵ English translation of Chinese term *mingan guojia*.

³⁸⁶ English translation of Chinese term *mingan hangye*.

³⁸⁷ English translation of Chinese term *bei'an*.

³⁸⁸ English translation of Chinese term *jishu zhengce*.

³⁸⁹ English translation of Chinese term *zhongyao yiju*.

³⁹⁰ *State Council Notice on Issuing the Investment Projects for Government Examination and Approval (2016 Edition)* §§ 2, 3 (State Council, Go Fa [2016] No. 72, issued Dec.12, 2016).

³⁹¹ *Measures on Administering Overseas Investment* (MOFCOM, Shang Wu Bu Ling [2014] Order No. 3, issued Sept. 6, 2014).

³⁹² *2014 MOFCOM Approval Measures*, art. 6.

³⁹³ *2014 MOFCOM Approval Measures*, art. 6.

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MOFCOM review, the information submitted is “filed for records,” combined with the issuance of a certificate to the enterprise.³⁹⁴ MOFCOM can choose to reject a “filing-for-records” submission if it deems the information to be “untruthful”³⁹⁵ or “incomplete.”³⁹⁶ These administrative procedures are significant because they allow MOFCOM to collect detailed information on and intervene administratively in individual investment transactions.

Pursuant to the *Measures on the Administration of Examination and Approval and Filing-for-Records of Overseas Investment Projects (2014 NDRC Approval Measures)*,³⁹⁷ effective through February 2018, NDRC examines and approves investments that (1) exceed \$1 billion in value or (2) involve “sensitive countries” or “sensitive sectors.” For investments at or above \$2 billion that are also in “sensitive countries” or “sensitive sectors,” State Council approval is required.³⁹⁸ The *2014 NDRC Approval Measures* list “conformity with [...] industrial policies” as one of several “examination and approval” criteria.³⁹⁹ All other investments are “filed-for-records” with NDRC at the central level (for all investments by central SOEs and for investments at or above \$300 million for all other enterprises) or the local level (below \$300 million).⁴⁰⁰ Like MOFCOM, NDRC performs an administrative evaluation of investments that are “filed for records,” and its criteria include conformity with “industrial policies.”⁴⁰¹

Effective March 1, 2018, the *2014 NDRC Approval Measures* were replaced by the *Measures on the Administration of Enterprise Outbound Investment (2018 NDRC Approval Measures)*, which adjust but do not fundamentally alter the existing regulations.⁴⁰² NDRC will only “examine and approve” investments in “sensitive countries” or “sensitive sectors;” yet, in other respects, the new rules are more stringent. In particular, NDRC will now regulate not only outbound investments of People’s Republic of China (PRC)-registered enterprises, but also those overseas investments that are made by foreign entities that are ultimately “controlled” by PRC-registered

³⁹⁴ *2014 MOFCOM Approval Measures*, art. 9.

³⁹⁵ English translation of Chinese term *bu rushi*.

³⁹⁶ *2014 MOFCOM Approval Measures*, art. 9. English translation of Chinese term *bu wanzheng*.

³⁹⁷ *Measures on the Administration of Examination and Approval and Filing-for-Records of Overseas Investment Projects* (NDRC, 2014 Order No. 9, issued Apr. 8, 2014).

³⁹⁸ *2014 NDRC Approval Measures*, art. 7.

³⁹⁹ *2014 NDRC Approval Measures*, art. 18(1).

⁴⁰⁰ *2014 NDRC Approval Measures*, art. 8.

⁴⁰¹ In particular, art. 22 of the *2014 NDRC Approval Measures* provides: “For outbound investment projects applying for filing for records, NDRC performs screening and examination mainly with respect to whether the project belongs within the administrative scope of filing for records, conforms with relevant laws and regulations, industrial policies, and outbound investment policies [...] harms national sovereignty, security, or the public interest, and whether the investment entity possesses the corresponding investment capacity.” *2014 NDRC Approval Measures*, art. 22. See also arts. 20, 21, 23.

⁴⁰² *Measures on the Administration of Enterprise Outbound Investment* (NDRC, Order No. 11, issued Dec. 26, 2017, effective Mar. 1, 2018). Also in December 2017, NDRC and other government authorities jointly released a notice establishing behavioral norms for “private enterprises” (*minying qiye*) investing abroad. This measure provides, for example, that private enterprises are to participate in the “One Belt One Road” initiative, promote international industrial capacity and equipment manufacturing cooperation, act in the interest of the Chinese government’s supply side structural reform agenda, and help “protect China’s sovereignty (*guojia zhuquan*), security (*guojia anquan*), and public interest (*shehui gonggong liyi*).” *Notice on Issuing Behavioral Norms for Private Enterprise Foreign Investment Operations* § 1(2), § 3(18) (NDRC, MOFCOM, PBOC, Ministry of Foreign Affairs, and All-China Federation of Industry and Commerce, Fa Gai Wai Zi [2017] No. 2050, issued Dec. 6, 2017).

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enterprises.⁴⁰³ Moreover, NDRC will evaluate investments based on conformity with the “national interest”⁴⁰⁴ and “national security”⁴⁰⁵ (see below).

d) “National Security,” “National Interest,” and “Sensitive Sectors”

The Chinese government uses expansive definitions of “national security,” “national interest,” and “sensitive sectors” that leaves considerable discretion to government authorities when making outbound investment approval decisions.

The *2018 NDRC Approval Measures*, effective March 1, 2018, provide that outbound investment “must not threaten or harm our country’s national interest and national security,”⁴⁰⁶ and instruct NDRC to supervise outbound investment based on “protecting our country’s national interest and national security.”⁴⁰⁷ NDRC can order the suspension or modification of an outbound investment deemed to “threaten the national interest and national security.”⁴⁰⁸ Where an outbound investment is deemed to “harm the national interest and national security,” NDRC can terminate or modify the investment, take “remedial measures,”⁴⁰⁹ issue a warning to the investors, and, where a crime is suspected to have occurred, pursue criminal liability.⁴¹⁰ In addition, “national interest” and “national security” now serve as criteria for both “examination and approval” and “filing for records” reviews.⁴¹¹

The Chinese government also applies an expansive and inconsistent definition of “sensitive sectors.”

⁴⁰³ The *2014 NDRC Approval Measures* applied solely to the overseas investments of PRC-registered enterprises (art. 2). The *2018 NDRC Approval Measures* (art. 2) significantly expand this scope to also cover overseas investments that are made by foreign entities that are ultimately “controlled” by a PRC-registered enterprises. “Control” (*kongzhi*) in the regulation is broadly defined to mean either holding the majority of voting shares of the overseas enterprise or, in lieu of such majority, having “decisive power” over the major matters of that enterprise, such as its operations or finances. This amendment broadens the ability of the NDRC to monitor overseas investments connected to a Chinese investor and subjects them to the same verification and approval or recordation requirements that applies to investments made by PRC-registered enterprises.

⁴⁰⁴ English translation of Chinese term *guojia liyi*.

⁴⁰⁵ English translation of Chinese term *guojia anquan*.

⁴⁰⁶ *2018 NDRC Approval Measures*, art. 5.

⁴⁰⁷ *2018 NDRC Approval Measures*, art. 6.

⁴⁰⁸ *2018 NDRC Approval Measures*, art. 56.

⁴⁰⁹ English translation of Chinese term *bujiu cuoshi*.

⁴¹⁰ *2018 NDRC Approval Measures*, art. 56.

⁴¹¹ With respect to investments subject to “examination and approval,” art. 19 provides that the application form must include a “national interest and national security impact analysis”; art. 26 provides that NDRC will apply “not threaten or harm our country’s national interest and national security,” as well as conformity with “macro-adjustment and control policies,” as evaluating criteria; and art. 28 provides that NDRC is now authorized to “directly issue a non-approval decision”, without soliciting input or commissioning additional assessments, if an investment is deemed to “threaten or harm our country’s national interest and national security.”. With respect to investments subject to “filing for records”, art. 31 authorizes NDRC to reject the filing if the investment is deemed to “threaten or harm our country’s national interest and national security”.

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- The 2016 edition of the *Investment Catalogue* states that “[r]elevant departments under the State Council will examine and approve projects in sensitive countries and regions and sensitive sectors,” yet fails to define the term “sensitive.”⁴¹²
- The *2018 NDRC Approval Measures* list specific examples of “sensitive sectors,” but also define such sectors to include those that “require restricting enterprise outbound investment in accordance with our country’s macro-adjustment and control policies.”⁴¹³
- Likewise, the *2014 MOFCOM Approval Measures* provide that MOFCOM will examine and approve investments in “sensitive sectors,” and explains that “the sectors for which examination and approval administration will be implemented refer to sectors that have a bearing on exports of products and technologies that are restricted for export from the PRC, and sectors that affect the interests of more than one country (region).”⁴¹⁴ The inconsistent, vague, and open-ended use of this concept gives government agencies wide discretion to deploy their approval authority, and thus, the ability to influence the shape and direction of outbound investment.

e) Foreign exchange restrictions

Control over the use of foreign exchange is a crucial tool for the government to influence outbound investment. China operates a closed capital account that restricts currency convertibility, as well as monetary inflows and outflows.⁴¹⁵ Once enterprises have successfully undergone “examination and approval” or “filing for records” with MOFCOM and NDRC, they undergo additional review and approval in order to receive foreign exchange to make outbound investments. Prior to 2015, enterprises seeking to invest abroad had to apply for foreign exchange directly with the State Administration of Foreign Exchange (SAFE); subject to a reform instituted in 2015, enterprises now undergo review and approval from local banks, under SAFE supervision and guidance.⁴¹⁶

⁴¹² *Investment Catalogue* (2016 edition) § 12.

⁴¹³ *2018 NDRC Approval Measures*, art. 13. The sectors listed are weapons equipment, trans-border water resource development and use, and news media.

⁴¹⁴ *2014 MOFCOM Approval Measures*, art. 7.

⁴¹⁵ *China’s Capital Account – An Open and Shut Case*, WALL STREET JOURNAL, Feb. 25, 2014. (“As part of its push to give markets a “decisive” role in the economy, China has pledged to drop controls on the movement of capital and make its currency, the yuan, fully convertible. China for years has maintained a “closed” capital account, meaning companies, banks and individuals can’t move money in or out of the country except in accordance with strict rules. The limit for individuals is currently \$50,000 a year, while corporate investments need government approval.”).

⁴¹⁶ *Notice of the State Administration of Foreign Exchange on Further Simplifying and Improving Policies on the Administration of Foreign Exchange for Direct Investment* §§ 1(1)-1(2) (SAFE, Hui Fa [2015] No 13, issued Feb. 13, 2015). See also Thilo Hanneman, Daniel H. Rosen, RHODIUM, CHINESE INVESTMENT IN THE UNITED STATES: RECENT TRENDS AND THE POLICY AGENDA 67-68 (Dec. 2016) (“[Prior to 2015], [t]he State Administration of Foreign Exchange (SAFE) became the third major actor in the outbound FDI approval system. SAFE was a hurdle that investors had to take as it controlled access to foreign currency needed for outbound investments. [...] [I]n 2015 SAFE simplified and shortened the review process for foreign exchange approvals and delegated the verification of foreign exchange needs for outbound investments to local bank branches.”).

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Despite this recent change, SAFE significantly influences the decisions of local banks regarding the provision of foreign exchange.⁴¹⁷ In 2016, the government reportedly introduced various types of restrictions on the use of foreign exchange.⁴¹⁸ The restrictions were applied in an informal manner – *i.e.*, not set forth in official government measures – to several forms of foreign investment disfavored by the government.⁴¹⁹

Some observers have suggested that the government’s recent restrictions on certain outbound investments serve to enhance Chinese companies’ incentives to align their investments with government policies and priorities. According to the European Union Chamber of Commerce in China:

While [recent restrictions have] contributed to uncertainty regarding the ability of Chinese entities to complete investments, there is no reason to conclude that outbound investments that are not disguised capital flight or tainted by corruption will be brought to a halt, especially in sectors that have been identified as strategic priorities by the government. This conclusion is supported by a 26th December statement made at the 2016 National Commerce Work Conference by Minister of Commerce Gao Hucheng that the government “will promote the healthy and orderly development of outbound investment and cooperation” in 2017. During his January 2017 speech at the World Economic Forum in Davos, President Xi also stated that he expected outbound Chinese

⁴¹⁷ Thilo Hanneman, Daniel H. Rosen, RHODIUM, CHINESE INVESTMENT IN THE UNITED STATES: RECENT TRENDS AND THE POLICY AGENDA 70 (Dec. 2016) (“The degree of scrutiny exerted by banks depends on guidance by SAFE, and this guidance often correlates with the macroeconomic situation.”).

⁴¹⁸ Thilo Hanneman, Daniel H. Rosen, RHODIUM, CHINESE INVESTMENT IN THE UNITED STATES: RECENT TRENDS AND THE POLICY AGENDA 70 (Dec. 2016) (“In the first half of 2016, banks were asked by SAFE officials to tighten reviews of foreign exchange restrictions for outbound FDI projects following pressure by SAFE to slow down the outflow of foreign exchange. Banks were reportedly asked by SAFE to submit outbound FDI transactions of a certain size and type directly to SAFE.”). *See also* ALLEN & OVERY, CHINA’S NEW RESTRICTIONS ON OUTBOUND INVESTMENTS AND REMITTANCE (Dec. 30, 2016) (“1. Banks are now required to report any overseas transfer of \$5m or more under any capital account item (covering both foreign currency and CNY) per transaction to Beijing SAFE. Such overseas transfers can only be made after the Chinese regulators have re-examined the underlying transaction of the requested transfer to verify its authenticity and compliance with relevant regulations. 2. SAFE also tightened controls over ODI with a capital outflow of \$50m or more. Such fund transfers will only be made after re-examination of the underlying transaction for authenticity and compliance with relevant regulations. 3. The rules for cross-border CNY lending by Chinese companies (which used to be more relaxed than the regime for cross-border lending in foreign currency) has also been modified by the PBOC recently. The cross-border lending limit (which is below 30 percent of the lender’s total equity) and shareholding requirement (that the lender and the borrower must have a shareholding relationship) which previously applied only to foreign currency lending now also applies to cross-border CNY lending. In addition, the rules now make it clear that such cross-border CNY lending by Chinese companies need to be registered with SAFE.”).

⁴¹⁹ The Chinese government reportedly placed restrictions on: (1) Extra-large outbound investments: outbound real property acquisitions or developments by state-owned enterprises with an investment value of \$1bn or above; outbound investments of more than \$1bn outside of the core business of a Chinese buyer; and extra-large outbound investments valued at \$10bn or more; (2) OFDI by limited partnership; (3) Minority investments in listed companies: OFDI involving the acquisition of 10 percent or less of the shares in an overseas listed company; (4) “Small parent, big subsidiary”: OFDI where the size of the target is substantially larger than the size of the Chinese buyer or where the Chinese buyer makes the investment shortly after its establishment; (5) Privatization: participation in the delisting of overseas listed companies which are ultimately controlled by Chinese companies or individuals; (6) High risk/low return transactions: OFDI into an overseas target resulting in a high debt-to-asset ratio and low return on equity. ALLEN & OVERY, CHINA’S NEW RESTRICTIONS ON OUTBOUND INVESTMENTS AND REMITTANCE (Dec. 30, 2016).

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investment to amount to USD 750 billion over the next five years. *These strengthened controls may actually motivate more Chinese companies to look for ways to align their investment plans with government priorities outlined in [Made in China 2025], since presenting investments to the authorities that support their priorities—for example those outlined in [Made in China 2025] or the Belt and Road Initiative (BRI)—can be expected to achieve a higher rate of approval.*⁴²⁰

3. Sectors “Encouraged” for Outbound Investment

To channel outbound investments towards state priorities, China has instituted a system of “encouraged”⁴²¹ sectors. Although the list of encouraged sectors has evolved over time, the general approach is to induce investment in these sectors through preferential treatment and financing.

China launched this system in 2006, when NDRC, MOFCOM, and other government authorities jointly issued the *Overseas Investment Industrial Guiding Policy*.⁴²² The stated objective of this policy was to “accelerate the implementation of the ‘Going Out’ strategy” and to “formulate a guiding policy especially for outbound investment pursuant to China’s five-year plans for national economic and social development and in accordance with requirements of investment system reform and industrial policy.”⁴²³

The *Overseas Investment Industrial Guiding Policy* identifies categories of “encouraged-type overseas investment projects;” (1) investments that enable the acquisition of resources and raw materials that are in short supply domestically and which are “in urgent demand for national economic and social development;” (2) investments that support the export of products, equipment, technology, and labor for which China has a comparative advantage; and, (3) investments that “are able to clearly enhance China’s technology research and development capacity, including an ability to use international leading technology and advanced management experience and professional talent.”⁴²⁴ Thus, the acquisition and subsequent use of technology is a central feature of “encouraged” outbound investments.

In addition, the *Overseas Investment Industrial Guiding Policy* targets specific sectors for preferential treatment. The policy includes a catalogue of 40 industries that are “encouraged” and eight industries that are “prohibited” for overseas investment. The catalogue appended to the *Overseas Investment Industrial Guiding Policy* includes several technology-related sectors, such as overseas manufacturing investments in chemical product manufacturing advanced technology which China is unable to access and passenger vehicles (including engine products with advanced technology), as well as overseas services investments relating to high and new technology and product research.⁴²⁵

⁴²⁰ E. U. CHAMBER, CHINA MANUFACTURING 2025: PUTTING INDUSTRIAL POLICY AHEAD OF MARKET FORCES 21 (2017) (emphasis added).

⁴²¹ English translation of Chinese term *guli*.

⁴²² *Overseas Investment Industrial Guiding Policy* (NDRC, MOFCOM, Ministry of Foreign Affairs, GAC, SAFE, Fa Gai Wai Zi [2006] No. 1312, issued July 5, 2006).

⁴²³ *Overseas Investment Industrial Guiding Policy*, art. 1.

⁴²⁴ *Overseas Investment Industrial Guiding Policy*, art. 6.

⁴²⁵ *Overseas Investment Industrial Guiding Policy*, Annex §§ 3(8), 3(17), 4(5).

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Investments that are “encouraged” receive several forms of government support, including: subsidies for fees incurred, and bank loans at government-subsidized interest rates; policy bank loan support; priority administrative approval; priority support for the use of foreign exchange; export tax rebates on exports of equipment and other materials relating to the overseas investment project; priority access to services relating to overseas financing, investment consultation, risk evaluation, risk control, and investment insurance; and coordinated support from several government departments with respect to information exchange, diplomatic protections, the travel of personnel abroad, and registration of import and export rights.⁴²⁶

A recent State Council opinion clarifies and supplements this approach. In its *Guiding Opinion on Further Guiding and Standardizing the Direction of Overseas Investment (2017 Investment Opinion)*, issued in August 2017, the State Council re-affirmed the importance of “catalyzing the ‘Going Out’ strategy for products, technologies, and services.”⁴²⁷ It also aims to expand the speed, scale, and efficacy of China’s outbound investment, so as to promote “transformation and upgrading of the domestic economy” and “international industrial capacity cooperation.”⁴²⁸

In addition, the *2017 Investment Opinion* re-defines the broad categories of “encouraged” investments. Technology acquisition and utilization is a key consideration in determining whether a sector is “encouraged.” For instance, the *2017 Investment Opinion* encourages investments that strengthen “investment cooperation” with “overseas high and new technology and advanced manufacturing industry enterprises,” as well as investments that promote the “sending out” from China to the world of “advantageous manufacturing capacity, advantageous equipment, and technology standards.”⁴²⁹

Echoing previous state policies, the *2017 Investment Opinion* also states that “encouraged” investments will receive “a more enhanced level of service with respect to tax collection, foreign exchange, insurance, customs, information, and other matters, so as to create more favorable facilitating conditions for the enterprise,”⁴³⁰ In addition, the opinion introduces the “negative list” concept⁴³¹ with respect to general overseas investment.

4. Outbound Investment Policy in Technology and Sectoral Policies

As mentioned in Section I.C, China has issued a series of science and technology (S&T) and sectoral policies that are intended to promote indigenous innovation and technology transfer. S&T planning documents also reference the role of outbound investment in achieving these objectives. For instance, the *2010 Decision on Accelerating the Cultivation and Development of Strategic Emerging Industries (SEI Decision)* – which targets strategic emerging industries –

⁴²⁶ *Overseas Investment Industrial Guiding Policy*, art. 8.

⁴²⁷ *Guiding Opinion on Further Guiding and Standardizing the Direction of Foreign Investment*, preamble (NDRC, MOFCOM, PBOC, Ministry of Foreign Affairs, Guo Ban Fa [2017] No. 74, issued Aug. 4, 2017).

⁴²⁸ *2017 Investment Opinion* Preamble, § 3.

⁴²⁹ *2017 Investment Opinion* §§ 3(1)-3(6).

⁴³⁰ *2017 Investment Opinion* § 6(1).

⁴³¹ *2017 Investment Opinion* § 2, ¶2.

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contains provisions on “deepening international cooperation and enhancing the level of internationalized development.”⁴³² The document calls on authorities to:

Pragmatically enhance the quality and level of international investment financing cooperation. [...] Support capable enterprises to engage in overseas investment [...] Expand the autonomy of enterprises to make overseas investments, improve the approval process, and further amplify foreign exchange support for enterprises to make overseas investments. Actively explore the establishment of science and technology and industrial parks abroad, formulate a country-specific industrial guidance catalogue to guide enterprises in development of multinational investments.⁴³³

The *SEI Decision* also calls for “supporting enterprises to use methods including overseas registered trademarks and overseas acquisitions [...]”⁴³⁴

Likewise, the *Made in China 2025 Notice*, which, as discussed in Section I.C, serves as the basis for the Made in China 2025 policy, calls for “supporting enterprises to make acquisitions, equity investments, and venture investments overseas, and to establish R&D centers and testing bases and global distribution and services networks overseas.”⁴³⁵ The *Made in China 2025 Notice* also outlines a wide-ranging strategy for harnessing and promoting the acquisition of foreign technology through outbound investment:

[...] Promote a transition from prioritizing introducing investment, technology, and equipment to the development of joint ventures and cooperation, outbound acquisitions, and the introduction of leading talent. Strengthen legislation governing outbound investment, strengthen “Going Out” legal guarantees for manufacturing enterprises, and standardize enterprise overseas operating behavior, to protect enterprises’ lawful rights. Explore the use of industrial funds, state-owned capital dividends, and other channels to support the “Going Out” of advantageous manufacturing capacity including high-speed rail, power generation equipment, automobiles, and engineering, to implement overseas investment acquisitions. Accelerate the establishment of entities for, and enhance the level of, services that support manufacturing industries “Going Out”; establish a public service platform for manufacturing industry outbound investment and a services platform for export product technology-type trade, and optimize early warning coordinating mechanisms to respond to trade frictions and major incidents in outbound investment.⁴³⁶

Planning documents for the ITC and IC sectors also emphasize the role of outbound investment in promoting technological development. For instance, the *Made in China 2025 Key Area Technology Roadmap (Made in China 2025 Roadmap)* contains a chapter devoted to the IT sector, and calls for development in this sector through the “Going Out” strategy

⁴³² *Decision on Accelerating the Cultivation and Development of Strategic Emerging Industries* § 6 (State Council, Guo Fa [2010] No. 32, issued Oct. 10, 2010).

⁴³³ *SEI Decision* § 6(2).

⁴³⁴ *SEI Decision* § 6(3).

⁴³⁵ *Made in China 2025 Notice* § 3, “Strategic Tasks and Priorities,” § 3(9), “Raise the Level of Internationalized Development of the Manufacturing Industry.”

⁴³⁶ *Made in China 2025 Notice* § 4, “Strategy Support and Guarantees,” § 4(7), “Further Expand Opening Up of Manufacturing Industries”.

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and overseas investment.⁴³⁷ The 2014 *IC Guidelines* also call for “encourag[ing] domestic enterprises to engage in international cooperation, integrate international resources, and expand international markets,” in conjunction with “making every effort to introduce foreign capital, technology, and talent” into China and encouraging international IT enterprises to “establish R&D, manufacturing, and operating centers [in China].”⁴³⁸

5. State-Backed Actors

To implement its outbound investment strategy, China relies on an array of actors with ties to the government. These actors have traditionally comprised non-financial SOEs and the largest state-owned policy and commercial banks. But more recently, this set of actors has grown to include nominally private enterprises and financial entities, such as funds and investment companies, that have connections with or are funded by the government. Each group of actors is discussed in more detail below.

a) *State-Owned Enterprises and State-owned Banks*

In the early stages of Chinese outbound investment, SOEs played a leading role – particularly national oil companies and state-owned mining and metal processing companies.⁴³⁹ Today, SOEs continue to account for a significant share of overall outbound investment, and are responsible for many of the largest overseas transactions.⁴⁴⁰ For example, the central SOE ChemChina acquired the Swiss firm Syngenta for \$43 billion in 2016.⁴⁴¹ State-owned banks, in particular the policy banks China Exim and CDB, and the four largest state-owned commercial banks, have facilitated outbound investments, primarily through financing support to SOEs.⁴⁴² In October 2016, China’s president Xi Jinping, who also serves as General Secretary of the CCP, described

⁴³⁷ *Made in China 2025 Key Area Technology Roadmap* § 1.2.5.4 (National Strategic Advisory Committee on Building a Powerful Manufacturing Nation, issued Oct. 2015).

⁴³⁸ *Formal Announcement of Guidelines for the Development and Promotion of the Integrated Circuit Industry* § 4(8) (MIIT, issued June 24, 2014).

⁴³⁹ For studies of investments by Chinese SOEs in the mining and energy sectors, see, e.g. ROBERT EVAN ELLIS, *THE EXPANDING CHINESE FOOTPRINT IN LATIN AMERICA: NEW CHALLENGES FOR CHINA AND DILEMMAS FOR THE US* (2012); Ruben Gonzalez-Vicente, *Mapping Chinese Mining Investment in Latin America: Politics or Market?*, *THE CHINA Q.* 209 35, 35–58 (2012); BARBARA KOTSCHWAR, THEODORE H. MORAN & JULIA MUIR, *CHINESE INVESTMENT IN LATIN AMERICAN RESOURCES: THE GOOD, THE BAD, AND THE UGLY*, PETERSON INSTITUTE FOR INTERNATIONAL ECONOMICS (2012); Chen Shaofeng, *Has China’s Foreign Energy Quest Enhanced Its Energy Security?* *THE CHINA QUARTERLY* 207, 600–625 (2011); CHRIS ALDEN ET AL (ED.), *CHINA RETURNS TO AFRICA: A RISING POWER AND A CONTINENT EMBRACE* (C. Hurst & Co Publishers Ltd 2008); Erica S. Downs, *The Fact and Fiction of Sino-African Energy Relations*, 3(3) *CHINA SECURITY* 42, 42–68 (2007).

⁴⁴⁰ Thilo Hanneman, Daniel H. Rosen, *RHODIUM, CHINESE INVESTMENT IN THE UNITED STATES: RECENT TRENDS AND THE POLICY AGENDA* 7 (2016), (“[recent] Chinese restructuring plans suggest that SOEs will remain an important part of China’s FDI flows in years ahead . . .”); see also Haiyan Zhang & Daniel Van Den Bulcke, *China’s Direct Investment in the European Union: A New Regulatory Challenge*, 12 *ASIA EUROPE J.* 168, 168 (2014) (“The five Chinese ‘acquirers’ that were investigated within the [EU Merger Regulation] framework were all large state-owned enterprises that are ranked among Fortune Magazine’s global 500 companies, i.e. China National Bluestar of ChemChina, Huaneng, Sinochem, China National Agrochemical Corporation and PetroChina.”).

⁴⁴¹ Press Release, Syngenta, ChemChina Cash Offer to Acquire Syngenta at a Value of Over US\$ 43 Billion (Mar. 2, 2016).

⁴⁴² See Kevin P. Gallagher & Amos Irwin, *Exporting National Champions: China’s Outward Foreign Direct Investment Finance in Comparative Perspective*, 22 *CHINA & WORLD ECONOMY* 6, 1–21 (2014).

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the role of SOEs as extensions of the Party-state, and clarified that SOEs are “important forces to implement decisions” of the CCP and “major strategies,” such as industrial “Going Out” strategies to “enhance overall national power, economic and social development, and people’s wellbeing.”⁴⁴³

SOEs remain prevalent throughout the Chinese economy, and are market leaders in key sectors deemed strategic by the government, such as banking and finance, energy, telecommunications, aviation, and automotive.⁴⁴⁴ The presence of SOEs in the Chinese economy is especially evident with respect to credit allocation. The International Monetary Fund (IMF), for example, reports that domestically the “SOE share in credit stock” was 55.6 percent in 2014.⁴⁴⁵

SOEs are also subject to state direction and control. Indeed, the Chinese government has a constitutional and legal mandate to maintain a leading role for the state sector.⁴⁴⁶ The largest central SOEs in China are administered by the State Council’s State-owned Assets Supervision

⁴⁴³Xi *Stresses CPC Leadership of State-owned Enterprises*, XINHUA NEWS, Oct. 11, 2016, available at <http://news.xinhuanet.com/english/2016-10/11/c135746608.htm>.

⁴⁴⁴For example:

- In the banking sector, the “Big Five” commercial banks in China – Bank of China (BoC), Industrial and Commercial Bank of China (ICBC), China Construction Bank Corporation (CCBC), Agriculture Bank of China (ABC), and Bank of Communications (BCM) – are majority-owned by the central government and account for almost half the total loan market. DOUGLAS J ELLIOTT & KAI YAN, *BROOKINGS, THE CHINESE FINANCIAL SYSTEM: AN INTRODUCTION AND OVERVIEW* 3 (2013).
- In the oil and gas sector, three enterprises administered by SASAC—China National Offshore Oil Corp., China National Petroleum Corp. and Sinopec—accounted for 94 percent of domestic oil production and 99 percent of domestic gas production in 2015. See Lei Wang, Presentation to the Colorado School of Mines at the Oil & Gas Conference, slide 13 (Aug. 17, 2016).
- In the aviation sector, Commercial Aircraft Corporation of China, Ltd. (COMAC), managed by SASAC, is the only major firm dedicated to producing large commercial aircraft. See Keith Crane et al, RAND, *THE EFFECTIVENESS OF CHINA’S INDUSTRIAL POLICIES IN COMMERCIAL AVIATION MANUFACTURING* 25 (2014). See also *About Us*, COMMERCIAL AIRCRAFT CORPORATION OF CHINA, LTD., <http://english.comac.cc/aboutus> (last visited Jan. 11, 2018); *China’s Big Three Airlines Set to Report Biggest Combined Profit Since 2010*, BLOOMBERG NEWS, Mar. 29, 2017.
- In the automotive sector, the market leaders in domestic vehicle sales are joint ventures between foreign automakers and the three SIEs: Shanghai Automotive Industry Corp., First Automotive Works, and Dongfeng Motor Corporation. See *Top 10 Chinese Automotive Firms by Revenue in 2015*, CHINA DAILY, Jun. 6, 2016.

⁴⁴⁵KANG ET AL., *PEOPLE’S REPUBLIC OF CHINA: SELECTED ISSUES*, INTERNATIONAL MONETARY FUND COUNTRY REPORT NO. 16/271, at “Table 1. Rebalancing Score Card” (2016).

⁴⁴⁶The guiding principles for government ownership and control are set forth in the *Constitution of the People’s Republic of China* [hereinafter “China Constitution”] and the *CCP Constitution*. *China Constitution*, art. 7, provides that “[t]he state-owned economy, that is, the socialist economy with ownership by the whole people, is the leading force in the national economy. The state ensures the consolidation and growth of the state-owned economy.” Article 11 also provides that “[t]he state permits the private sector of the economy to exist and develop within the limits prescribed by law. The private sector of the economy is an important component of the socialist market economy.” Article 11 states that “[t]he state encourages, supports, and guides the development of the non-public sectors of the economy [...]” (emphasis added). The state is to take active steps to ensure the growth of the state-owned economy as the core of the economic system, and it will also intervene in the private sector, a component of the overall economy. The *CCP Constitution*, in turn, states: “[T]he Party must uphold and improve the basic economic system, with public ownership playing a dominant role and different economic sectors developing side by side [...]” (emphasis added). Accordingly, CCP members and the leadership have a mandate to ensure the dominance of the state and SOEs in the economy.

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and Administration Commission (SASAC), the government's representative shareholder responsible for the largest central government SOEs. Likewise, provincial and municipal SOEs are administered by local SASAC entities. Other government bodies are also controlling shareholders of certain enterprises.

SASAC imposes an elaborate system of rules, plans, and reporting requirements, which it uses to monitor and influence the outbound investments of central SOEs. SASAC has articulated these requirements in two measures: the *Provisional Measures on Supervision and Administration of Central State-Owned Enterprise Overseas Investments (2012 SOE Measures)*,⁴⁴⁷ and its successor, the *Measures on Supervision and Administration of Central State-Owned Enterprise Overseas Investments (2017 SOE Measures)*.⁴⁴⁸

- Conformity with state policies: The *2012 SOE Measures* stipulated that when undertaking outbound investments, SOEs are to act in accordance with basic principles including “conformity with plans for national economic and social development and overseas investment industrial policies;” “conformity with the composition of the state-owned economy and the direction of structural adjustment;” “conformity with enterprise-level strategies for development and enterprise-level strategies for internationalizing operations, focusing on core industries, conducive to enhancing the enterprise’s international competitiveness.”⁴⁴⁹ The updated *2017 SOE Measures* simplify these principles, but likewise maintain that central SOEs are to act in accordance with “strategic guidance,” including devising plans to internationalize their business and making investments that enhance innovative capacity and international competitiveness.⁴⁵⁰ Central SOEs are also to abide by the principle of “maintaining and enhancing the value of state-owned assets” when undertaking outbound investments.⁴⁵¹
- Negative list: The *2017 SOE Measures* call for establishing an “enterprise overseas investment administration system.” As part of this system, central SOEs are to act in accordance with an individualized “negative list”⁴⁵² formulated by SASAC that outlines types of investments the enterprise should not make. If the enterprise nonetheless chooses to make a “negative list” investment, it must seek formal approval from SASAC and submit a prescribed set of application materials, including internal company decision documents, a financing plan, and feasibility study.⁴⁵³

⁴⁴⁷ *Provisional Measures on Supervision and Administration of Central State-Owned Enterprise Overseas Investments* (SASAC, 2012 Order No. 28, issued Mar. 18, 2012).

⁴⁴⁸ *Measures on Supervision and Administration of Central State-Owned Enterprise Overseas Investments* (SASAC, 2017 Order No. 35, issued Jan. 7, 2017). This measure was formulated expressly pursuant to laws and regulations governing state-owned assets and recent initiative to improve the performance of SOEs. The *2017 SOE Measures* were issued pursuant to the *Guiding Opinion on Deepening Reform of State-owned Enterprises* (CCP Central Committee and State Council, Guo Fa [2015] No. 22, issued Aug. 24, 2015), the *Several Opinions on Reforming and Optimizing the State-owned Asset Administration System* (State Council, Guo Fa [2015] No. 63, issued Oct. 25, 2015).

⁴⁴⁹ *2012 SOE Measures*, art. 5.

⁴⁵⁰ *2017 SOE Measures*, art. 6(1).

⁴⁵¹ *2017 SOE Measures*, art. 6(4).

⁴⁵² English translation of Chinese term *fumian qingdan*.

⁴⁵³ *2017 SOE Measures*, arts. 7, 12.

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- Overseas investment plans: The *2017 SOE Measures* state that central SOEs are to formulate “plans for the internationalization of operations”⁴⁵⁴ that define priority regions, sectors, and projects for medium- and long-term internationalization of operations, in accordance with state-owned enterprise five-year plan outlines and enterprise development strategies and plans formulated by SASAC. In turn, central SOEs are to formulate a more detailed “annual overseas investment plan”⁴⁵⁵.
- Reporting obligations: The *2017 SOE Measures* also instruct central SOEs to submit quarterly reports on the status of overseas investments to SASAC via an internal IT network, and to draft an “annual overseas investment completion status report” to be submitted to SASAC on January 31 of each year, which is to detail the overall status and positive results of overseas investment, progress on major overseas investment projects, and a post-investment evaluation work, and the main problems confronted.⁴⁵⁷
- Review and discipline: The *2017 SOE Measures* provide that SASAC will establish a system of indices to evaluate the internationalization of operations of central SOEs, to include, among other criteria, the “direction of investment.”⁴⁵⁸ Moreover, if central SOE personnel take actions in outbound investment that “cause an unfavorable impact,” SASAC will take disciplinary action against those personnel. If the actions “cause the loss of state-owned assets,” then the CCP can take disciplinary action; and if the actions violate the law, the personnel can be handed over to law enforcement.⁴⁵⁹

In addition to SASAC, the Ministry of Finance (MOF) has recently adopted regulations specific to the outbound investment of SOEs. The *Measures on the Financial Administration of State-owned Enterprises Overseas Investment (MOF Measures)*, issued in June 2017, call for “enhanc[ing] the capacity of state-owned capital in the service of national strategies including ‘One-Belt One-Road’ and ‘Going Out.’”⁴⁶⁰ The *MOF Measures* provide that an SOE’s CCP Committee is to participate, alongside the company’s board, chief executives, and shareholders, in deliberating the financial feasibility of the projects outlined in the enterprise’s “overseas investment plan.”⁴⁶¹

Under the *MOF Measures*, SOEs also must submit to MOF annual reports on the financial status of overseas investments.⁴⁶² Local branches of MOF are in charge of collecting and summarizing these documents.⁴⁶³ SOEs also are required to provide an annual overseas investment evaluation report, which will largely determine (1) the degree of government support for that SOE’s overseas investment activities, (2) the state shareholders’ treatment of the SOE (*e.g.*, whether to

⁴⁵⁴ English translation of Chinese term *guojihua jingying guihua*.

⁴⁵⁵ English translation of Chinese term *niandu jingwai touzi jihua*.

⁴⁵⁶ *2017 SOE Measures*, art. 11.

⁴⁵⁷ *2017 SOE Measures*, arts. 19, 20.

⁴⁵⁸ *2017 SOE Measures*, arts. 22, 23.

⁴⁵⁹ *2017 SOE Measures*, art. 30.

⁴⁶⁰ *Notice on Issuing the “Measures on the Financial Administration of State-owned Enterprises Overseas Investment”*, cover sheet (MOF, Cai Zi [2017] No. 24, issued Jun. 12, 2017).

⁴⁶¹ *MOF Measures*, arts. 6, 7.

⁴⁶² *MOF Measures*, art. 8.

⁴⁶³ *MOF Measures*, art. 9.

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restructure the enterprise's assets), and (3) local government officials' assessment of how well the SOE is executing its "Going Out" strategy, and whether more support should be provided to the SOE for "Going Out" purposes.⁴⁶⁴

Through the CCP, the Chinese government exercises additional control over SOE behavior. Top executives of SOEs are generally CCP members, cycle between corporate and government positions, and are subject to evaluation by the CCP Organization Department.⁴⁶⁵ SOEs also host CCP committees that actively participate in corporate governance. This arrangement is codified in Chinese law: according to Article 19 of the *Company Law of the People's Republic of China (PRC Company Law)*,⁴⁶⁶ an organization of the CCP may be set up in all enterprises, regardless of whether it is a state, private, domestic, or foreign-invested enterprise, to carry out activities of the CCP.

There are indications that a coordinated push is now underway to increase Party committee influence on company decisions.⁴⁶⁷ More than thirty Hong Kong-listed Chinese SOEs reportedly altered their articles of association in 2017 to codify a more explicit operational role for their internal Party committees.⁴⁶⁸ For instance, Sinopec amended its articles of association to call for increased CCP input on major corporate matters and management personnel:

When making decisions on significant matters such as direction of reform and development, key objectives, and priority operational arrangements of the Company, the board of directors should seek advice from the Party organization. When the board of directors appoints the management personnel of the Company, the Party organization shall consider and provide comments on the candidates for management positions nominated by the board of directors or the president, or recommend candidates to the board of directors and/or the president.⁴⁶⁹

⁴⁶⁴ *MOF Measures*, arts. 39-41.

⁴⁶⁵ U.S. DEPARTMENT OF COMMERCE, CHINA'S STATUS AS A NON-MARKET ECONOMY 82-94 (Oct. 26, 2017). RICHARD MCGREGOR, THE CCP: THE SECRET WORLD OF CHINA'S COMMUNIST RULERS 49-50 (2010) (stating that "the CCP has remained unyielding on a number of fronts. Its control over personnel appointments has been inviolate."); *see also*, ZHENG YONGNIAN, THE CHINESE COMMUNIST PARTY AS ORGANIZATIONAL EMPEROR: CULTURE, REPRODUCTION, AND TRANSFORMATION 103-104 (2010) ("The CCP's most powerful instrument in structuring its domination over the state is a system called the 'Party management of cadres' (dangguan ganbu), or more commonly known in the West as the nomenklatura system. The nomenklatura system 'consists of lists of leading positions, over which Party units exercise the power to make appointments and dismissals; lists of reserves or candidates for these positions; and institutions and processes for making the appropriate personnel changes.'").

⁴⁶⁶ *PRC Company Law* (adopted by the NPC on Dec. 29, 1993, amended Dec. 25, 1999, further amended Aug. 28, 2004 and Oct. 27, 2005 and Dec. 28, 2013).

⁴⁶⁷ These efforts may be traced back to the March 2012 release of a document titled "Opinions on Strengthening and Improving Party Building in Nonstate Enterprises," issued by the CCP Organization Department. More recently, the party has issued a directive targeting party-building in entrepreneurial ventures. *See Opinions on Creating a Healthy Environment for the Development of Entrepreneurs, Promoting Entrepreneurship and Allowing Full Play to the Role Played by Entrepreneurs* (CCP and State Council, Sept. 8, 2017).

⁴⁶⁸ Jennifer Hughes, *China's Communist Party Writes Itself into Company Law*, FINANCIAL TIMES, Aug. 14, 2017.

⁴⁶⁹ SINOPEC, PROPOSED AMENDMENTS TO THE ARTICLES OF ASSOCIATION AND THE RULES OF PROCEDURE FOR THE BOARD OF DIRECTORS' MEETING, art. 109, available at <http://www.hkexnews.hk/listedco/listconews/SEHK/2017/0427/LTN201704272794.pdf>

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Given the level of control exerted over SOEs by the state and CCP, outbound investment by SOEs is frequently directed at achieving state policies and objectives. As one participant in the investigation observed, “[m]uch Chinese FDI comes from state-owned enterprises that often have different motives than simply maximizing profits. Rather, their investments often serve strategic state goals.”⁴⁷⁰ Likewise, in its 2017 report on China’s status as a non-market economy, the European Commission remarked on “the [Chinese] government’s determination to further develop the dominant role of the state-owned economy, in particular by selectively creating large SOEs, shielded from competition domestically and expanding internationally which would serve the Government’s strategic industrial policies rather than focusing on their own economic performance.”⁴⁷¹

Tsinghua Unigroup and its parent company, Tsinghua Holdings Co., Ltd. (Tsinghua Holdings), illustrate the extent to which state policies direct SOE activities, including outbound investment. The decision to establish Tsinghua Holdings was approved by the State Council.⁴⁷² Tsinghua Holdings is wholly state-owned,⁴⁷³ via Tsinghua University,⁴⁷⁴ and controls Tsinghua Unigroup through a 51 percent ownership stake.⁴⁷⁵ Tsinghua Unigroup is funded, in part, through an equity investment of CNY 10 billion (\$1.6 billion)⁴⁷⁶ from China’s National Integrated Circuit Investment Fund (National IC Fund).⁴⁷⁷ At one point the company’s CCP secretary was Hu Haifeng, the son of China’s former president Hu Jintao.⁴⁷⁸ Reflecting these state ties, Tsinghua Holdings notes in its annual report that its development strategy is oriented toward the needs of national strategy,⁴⁷⁹ and that Tsinghua Unigroup employs an “international acquisition + indigenous innovation” development model focused on the IC industry.⁴⁸⁰

Tsinghua Unigroup’s Chairman, Zhao Weiguo, is also the Deputy Director General of the “China High-End Chip Alliance,” which is composed of 27 “backbone enterprises” and research institutes and is tasked with creating an IC industry ecosystem in China. The alliance was

⁴⁷⁰ INFORMATION TECHNOLOGY & INNOVATION FOUNDATION [*hereinafter* “ITIF”], *Submission, Section 301 Hearing 7* (Oct. 25, 2017).

⁴⁷¹ EUROPEAN COMMISSION, COMMISSION STAFF WORKING DOCUMENT ON SIGNIFICANT DISTORTIONS IN THE ECONOMY OF THE PEOPLE’S REPUBLIC OF CHINA FOR THE PURPOSES OF TRADE DEFENCE INVESTIGATIONS 108-109 (SWD(2017)483 final/2 (Dec. 20, 2012).

⁴⁷² *Letter Regarding Approval for Beijing University and Tsinghua University to Establish Peking University Asset Management Company Limited and Tsinghua Holdings Company Limited* (State Council, Guo Ban Han [2003] No. 30, issued Apr. 24, 2003).

⁴⁷³ TSINGHUA HOLDINGS, 2016 BOND PROSPECTUS 13[Chinese] (2016).

⁴⁷⁴ Imagination Technologies filing with the U.K. Financial Conduct Authority, *TR-1: Notification of Major Interest in Shares*, notified on May 22, 2017.

⁴⁷⁵ TSINGHUA HOLDINGS, 2016 BOND PROSPECTUS 44 [Chinese] (2016).

⁴⁷⁶ Foreign currency values are followed by a parenthetical estimation of the USD value. When available, USD conversion values are taken from primary or secondary sources. In cases where a U.S. dollar estimate is unavailable, the foreign currency value is generally based on the U.S. Federal Reserve Bank average annual exchange rate for the relevant year. The U.S. Federal Reserve Bank’s average annual currency exchange rates are available at <https://fred.stlouisfed.org>.

⁴⁷⁷ Press Release, Tsinghua Unigroup, Tsinghua Unigroup Receives CNY 10 Billion Investment from the National Integrated Circuit Investment Fund [Chinese] (Feb.14, 2015), available at <http://www.unigroup.com.cn/newscenter/jtxw/2015/0214/138.html>.

⁴⁷⁸ Gerry Shih, *Political Ties Could Prove Double-edged Sword for Chinese Chipmaker*, REUTERS, July 14, 2015.

⁴⁷⁹ TSINGHUA HOLDINGS, 2016 BOND ANNUAL REPORT 55 [Chinese] (Apr. 28, 2017).

⁴⁸⁰ TSINGHUA HOLDINGS, 2016 BOND ANNUAL REPORT 50 [Chinese] (Apr. 28, 2017).

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proposed by Chairman Xi and established by the National IC Industry Development Leading Small Group in July 2016.⁴⁸¹ On the establishment of the alliance, Tsinghua Unigroup's Chairman stated that:

We are in the midst of a great country, a great era, and a great undertaking. The establishment of the 'China High-End Chip Alliance' expresses the desire of the alliance members and the broader China IC industry to work as one to carry out properly the great undertaking that is China's IC industry. We will work together to consolidate industry resources and advance strategy, technology, standards, the market, and other cooperative links to jointly drive the future of China's chip industry.⁴⁸²

Reflecting its commitment to these objectives, Tsinghua Unigroup has attempted to acquire several U.S. IC companies. In July 2015, Unigroup made a \$23 billion bid for Micron Technologies, the Idaho-based world leader in memory chips, but the deal was abandoned, reportedly due to concerns about whether the Committee on Foreign Investment in the United States (CFIUS) would approve the transaction.⁴⁸³ Unigroup, through its Unisplendour subsidiary, also offered to purchase a 15 percent stake in Western Digital, an industry leader in storage solutions; but the offer was withdrawn in early 2016, reportedly due to concerns with CFIUS scrutiny of the transaction.⁴⁸⁴

b) Other Enterprises with State Support and Linkages

A growing share of China's outbound investment is undertaken by private enterprises in which the government does not own an observable controlling stake.⁴⁸⁵ Nonetheless, the government may exert substantial influence over the outbound investment behavior of such nominally private

⁴⁸¹ Press Release, Chipone, IC National Team: Which Enterprises Participate in the High-end Chip Alliance? [Chinese] (Aug. 8, 2016), available at <http://www.chiponeic.com/content/details1264.html>.

⁴⁸² Press Release, Tsinghua Unigroup, Tsinghua Unigroup Joins Hands with 27 Organizations to Jointly Establish the 'China High-End Chip Alliance' [Chinese] (Aug. 2, 2016), available at <http://www.unigroup.com.cn/newscenter/jtxw/2016/0802/238.html>. The General Manager of the National IC Fund, Ding Wenwu, is Director General of the Alliance. Press Release, Chipone, IC National Team: Which Enterprises Participate in the High-end Chip Alliance? [Chinese] (Aug. 8, 2016), available at <http://www.chiponeic.com/content/details1264.html>.

⁴⁸³ Liana B. Baker, Greg Roumeliotis, *Exclusive: Micron does not believe deal with Tsinghua is possible – sources*, REUTERS, July 21, 2015.

⁴⁸⁴ *Tsinghua Kills \$3.8bn Investment Plan in Western Digital*, FINANCIAL TIMES, Feb. 23, 2016.

⁴⁸⁵ Thilo Hanneman, Daniel H. Rosen, RHODIUM GROUP, CHINESE INVESTMENT IN THE UNITED STATES: RECENT TRENDS AND THE POLICY AGENDA 7 (Dec. 2016) (“The shift in investment patterns has also informed the mix of Chinese investors in the US economy. Previously dominated by trading companies and large state-owned enterprises (SOEs), investment in recent years was almost entirely driven by private sector firms.”). *But see also* Curtis J. Milhaupt & Wentong Zheng, *Beyond Ownership: State Capitalism and the Chinese Firm*, 103 GEO. L.J. 665, 701 (2015) (stating that “[o]wnership of the firm as such provides relatively little information about the degree of autonomy the firm enjoys from the state... because the Chinese party state retains (relatively undefined) residual control rights in firms of all types, corporate ‘ownership’ is less central to understanding the attributes of the Chinese firm as compared to firms operating under market-neutral institutions and relatively robust constraints on state intervention.”).

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entities through other means – for instance, through the government approvals and financing processes described above, and the pervasive influence of the CCP.⁴⁸⁶

As discussed above, the outbound investment approvals system applies to all enterprises, not just SOEs. This gives the state a decisive role in determining which industry sectors should be targeted or closed for overseas investment. As a result, any enterprise seeking to receive government support for such acquisitions are incentivized to invest in sectors favored by the government, including those classified as “encouraged” in outbound investment measures and those identified in major S&T plans such as the *Made in China 2025 Notice*.⁴⁸⁷

Senior executives at China’s largest private companies regularly acknowledge the influence of this investment approvals system on their investment decisions. For instance, the *2017 Investment Opinion* of the State Council restricted overseas investments in property, sports, hotels, cinemas and entertainment,⁴⁸⁸ and encouraged companies to invest in China’s “One-Belt One-Road” initiative.⁴⁸⁹ Two of China’s largest overseas acquirers publicly announced their intention to comply with the new policy direction. Adam Tan, CEO of Hainan Airlines (HNA), noted that the company would “listen to orders” and pledged that HNA “will not invest in anything the government does not support.”⁴⁹⁰ Wang Jianlin, CEO of Wanda Group, stated that the company has “actively respond[ed] to the state’s call and decided to put its main investments within China.”⁴⁹¹ Wang further noted that recent asset sales were based on “state policy and the macro-environment.”⁴⁹² One U.S. lawyer, commenting on the effect of this policy change on his

⁴⁸⁶ See e.g. Bruce J. Dickson, *Integrating Wealth and Power in China: The Communist Party’s Embrace of the Private Sector*, 192 THE CHINA Q. (2007). Xiaojun Yan & Jie Huang, *Navigating Unknown Waters: The Chinese Communist Party’s New Presence in the Private Sector*, 37 CHINA REV. (2017).

⁴⁸⁷ E.U. CHAMBER, CHINA MANUFACTURING 2025: PUTTING INDUSTRIAL POLICY AHEAD OF MARKET FORCES 18-19 (2017).

⁴⁸⁸ *Guiding Opinion on Further Guiding and Standardizing the Direction of Foreign Investment* § 4 (NDRC, MOFCOM, PBOC, Ministry of Foreign Affairs, Guo Ban Fa [2017] No. 74, issued Aug. 4, 2017).

⁴⁸⁹ *2017 Investment Opinion* § 2.

⁴⁹⁰ Over the last several years, HNA has invested in Deutsche Bank, Swissport, Carlson Hotels, Hilton Worldwide, Ingram Micro, and logistics firm CWT. Frank Tang, *China’s HNA Says It Will Pull Out of Deals on Beijing’s Investment Blacklist*, SOUTH CHINA MORNING POST, Nov. 27, 2017. See also *HNA Considers Asset Sales, Signals Reversal of Buying Spree*, BLOOMBERG, Nov. 28, 2017.

⁴⁹¹ Hou Wen & Han Wei, *Wanda Will Keep Major Investments in China*, CAIXIN, July 21, 2017. In recent years Wanda has acquired AMC Cinemas, Carmike, Odeon UCI Legendary Entertainment, Infront Sports, World Triathlon, and yacht maker Sunseeker. In 2015, the New York Times noted that Wanda’s increase in overseas media acquisitions “coincided with a policy push by the Chinese leadership to expand the nation’s cultural influence both overseas and at home.” Michael Forsythe, *Wang Jianlin, A Billionaire at the Intersection of Business and Power in China*, NEW YORK TIMES, Apr. 28, 2015.

⁴⁹² Wang’s comments came before China officially issued its new foreign investment restrictions but after China’s National Reform and Development Commission had issued informal guidance suggesting the rules were forthcoming. Michael Forsythe, *Wang Jianlin, A Billionaire at the Intersection of Business and Power in China*, NEW YORK TIMES, Apr. 28, 2015. Although the asset sales involved properties located on mainland China, they were viewed as necessary to free up working capital following the government’s decision to withhold financing for some of the company’s overseas deals. Li Xuanmin, *Wanda in Big Sell-off*, GLOBAL TIMES, Aug. 2, 2017 (“The conglomerate’s surprising move comes after the central government began prioritizing financial risk reduction in the second half of this year and warned against ‘irrational investment abroad,’ which the market believe has prompted Wang’s knee-jerk decision.”).

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Chinese clients, noted that his clients had merely redirected outbound investment from real estate and hotels to industries such as mining and aviation.⁴⁹³

These statements suggest that private companies' overseas investment decisions are not, as claimed by some participants in the investigation, wholly based on "market need" and "without intervention by the Chinese government,"⁴⁹⁴ but rather are strongly influenced by the Chinese government's decision to encourage or restrict a given overseas investment sector in line with the country's industrial policy.

Pervasive state involvement in China's financial sector is closely tied to China's outbound investment approvals regime. Private enterprises often rely on capital from state-owned policy banks, state-owned commercial banks, or state-backed funds to make an investment project viable.⁴⁹⁵ Moreover, there is an "abundance of empirical evidence [indicating] that the political connections of [private] firms in China are a strong indicator of their access to bank loans."⁴⁹⁶ This relationship is reinforced by government policy that directs state-owned financial institutions to support technological development objectives. For example, the 2014 *IC Guidelines* and the *International Cooperation Opinion* expressly direct China Exim and CDB to

⁴⁹³ Sui-Lee Wee, *Geely Buys Take in Volvo Trucks, Despite China Restrictions*, NEW YORK TIMES, Dec. 27, 2017.

⁴⁹⁴ See, e.g., Wang Guiqing, CHINA CHAMBER OF COMMERCE FOR IMPORT AND EXPORT OF MACHINERY AND ELECTRONIC PRODUCTS [*hereinafter* "CCCME"], *Testimony, Section 301 Hearing* 159 (Oct. 10, 2017) (explaining that business operations and acquisitions are "market oriented," and "[t]here is no intervention by the Chinese government in companies' business decisions"); John Tang, DHH WASHINGTON DC LAW OFFICE P.C. [*hereinafter* "DHH"], *Testimony, Section 301 Hearing* 155 (Oct. 10, 2017) ("Chinese companies including our firm have made billions of investments in the U.S. These investments are purely driven by market need. [...] [P]olitics does not have an influence on the business decisions."); CCCME, *Submission, Section 301 Hearing* 11 (Sept. 28, 2017) ("Chinese companies can choose any project independently and there are no government-motivated actions."); DHH, *Submission, Section 301 Hearing* 7 (Sept. 28, 2017) ("Chinese acquisitions overseas (including intellectual property) are not driven by the government, but instead by market need."); CHINA CHAMBER OF INTERNATIONAL COMMERCE [*hereinafter* "CCOIC"], *Submission, Section 301 Hearing* 64-65 (Sept. 26, 2017) ("Chinese companies' investment and acquisition in U.S. companies is normal commercial behavior, with no government direction behind it.").

⁴⁹⁵ U.S.-CHINA ECON. & SEC. REV. COMM'N, 2016 ANNUAL REPORT TO CONGRESS 102 (2016) ("Private firms often rely heavily on government subsidies to increase profit margins. In Professor Zheng's testimony to the Commission, he explained that private companies 'have to have the help of the state in order to prosper or even survive.' Huawei, for example, is a privately held firm but receives major funding from state-owned commercial and policy banks due to its status as a "national champion." [...] [A] private automobile manufacturer, BYD Co., has also benefitted from state support, receiving \$108 million in 2013 from local and central government subsidies, nearly 130 percent of its net profits for the year.").

⁴⁹⁶ Curtis J. Milhaupt & Wentong Zheng, *Beyond Ownership: State Capitalism and the Chinese Firm*, 103 GEO. L.J. 665, 690 (2015) (citing e.g., Clement Kong Wing Chow et al., *Investment Opportunity Set, Political Connection and Business Policies of Private Enterprises in China*, 38 REV. QUANTITATIVE FIN. ACCT. 367 (2012) (finding that firms with political connections in China are able to borrow more); Hongbin Li et al., *Political Connections, Financing and Firm Performance: Evidence from Chinese Private Firms*, 87 J. DEV. ECON. 283, 284 (2008) (finding that Communist Party membership helps private entrepreneurs in China to obtain loans from banks or other state institutions); Wubiao Zhou, *Bank Financing in China's Private Sector: The Payoffs of Political Capital*, 37 WORLD DEV. 787, 788 (2008) (finding that membership in China's legislative or semi-legislative organs helps private entrepreneurs obtain access to bank loans); Robert Cull et al., WORLD BANK, GOVERNMENT CONNECTIONS AND FINANCIAL CONSTRAINTS: EVIDENCE FROM A LARGE REPRESENTATIVE SAMPLE OF CHINESE FIRMS, Working Paper No. 6352, 7 (2013) (finding that government connections are associated with substantially less severe financial constraints at private firms in China)).

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provide financial support as needed.⁴⁹⁷ These incentives provide a further opportunity for the state to direct private enterprises' overseas investment in line with industrial policy.

The recent expansion of CCP committees in nominally private enterprises also enhances state influence over these enterprises' decision-making – including outbound investment activities. As noted above, the *Company Law of the People's Republic of China* authorizes the establishment of CCP committees in enterprises that are not state-owned. Recent statistics indicate that these Party committees now exist in “70 percent of some 1.86 million privately owned companies,”⁴⁹⁸ a sharp increase from 2014, when only 53.1 percent of China's 1.60 million private companies had such committees.⁴⁹⁹

The increasing influence of the CCP has affected foreign enterprises that are located in China. 106,000 firms had set up Party units in 2016, compared to only 47,000 firms in 2011.⁵⁰⁰ As a result, several of these companies report “political pressure” to allow their internal Party committees greater input on business operations and investment decisions.⁵⁰¹ Some foreign executives have reported that company investment decisions have already been made to satisfy internal CCP pressure.⁵⁰² These efforts are so pervasive that at least one foreign industry group – the Delegations of Germany Industry and Commerce – released a public statement in November 2017 pushing back against attempts by the CCP “to strengthen their influence in wholly foreign owned German companies in China.” The statement concluded that German companies may choose to leave China or reconsider investment strategies if such attempts continued.⁵⁰³

Recent CCP documents indicate that these Party-building efforts are affecting all types of enterprises in China, not just SOEs and foreign-invested entities (FIEs).⁵⁰⁴ Although there are few public reports concerning Party-building efforts within Chinese companies that lack significant foreign investment or control, it is reasonable to suppose that the CCP is making

⁴⁹⁷ *IC Guidelines* § 4(3); *International Cooperation Opinion* § 33.

⁴⁹⁸ Michael Martina, *Exclusive: In China, the Party's Push for Influence Inside Foreign Firms Stirs Fears*, REUTERS, Aug. 24, 2017.

⁴⁹⁹ Xiaojun Yan & Jie Huang, *Navigating Unknown Waters: The Chinese Communist Party's New Presence in the Private Sector* 37 CHINA REVIEW (2017).

⁵⁰⁰ He Hui Feng, *German Trade Body Warns Firms May Pull Out of China Over Communist Party Pressure*, SOUTH CHINA MORNING POST, Nov. 29, 2017.

⁵⁰¹ Michael Martina, *Exclusive: In China, the Party's Push for Influence Inside Foreign Firms Stirs Fears*, REUTERS, Aug. 24, 2017.

⁵⁰² Michael Martina, *Exclusive: In China, the Party's Push for Influence Inside Foreign Firms Stirs Fears*, REUTERS, Aug. 24, 2017 (“A sales and marketing head in China for a major U.S. consumer goods firm said its party cell had recently become more active, and had pushed for locating a new facility in a district where the local government was promoting investment, a move the company made.”).

⁵⁰³ Press Release, Delegations of German Industry and Commerce, *Increasing business challenges – Delegations of German Industry & Commerce in China concerned about growing influence of Chinese Communist Party on foreign business operations* (Nov. 24, 2017), available at <http://china.ahk.de/news/single-view/artikel/press-statement-increasing-business-challenges-delegations-of-german-industry-commerce-in-china-concerned-about-growing-influence-of-chinese-co/>.

⁵⁰⁴ See e.g., Lucy Hornby, *Communist party asserts control over China Inc.*, FINANCIAL TIMES, Oct. 3, 2017 (noting CCP's push to increase influence on SOEs, private companies, and joint ventures); *Provisions of the CCP Regarding On-Site Inspections* (2017 Revision) (CCP Central Committee, July 1, 2017) (Calling on central, provincial and local CCP committees to increase inspection and supervision of all Party organizations under their jurisdiction, including those existing in enterprises).

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similar demands on these companies.⁵⁰⁵ Unlike FIEs, Chinese companies likely have far less freedom to push back against such requests or to make them public.

Company executives often maintain close ties to the Party, either through their own membership in the Party or through cultivating political connections with influential Party cadres or organs in their locality.⁵⁰⁶ Likewise, industry associations may influence outbound investment behavior in line with government objectives. Industry associations exist for most of the technology-intensive manufacturing sectors of the Chinese economy, and most trace their origins to a government body. The members of these associations include SOEs as well as nominally private enterprises.⁵⁰⁷

c) State-backed Funds

The emergence of state-backed funds and investment companies represents an important new feature of China's financial sector.

An early development in this regard was the establishment in 2007 of China's sovereign wealth fund China Investment Corporation (CIC).⁵⁰⁸ CIC has received periodic capital injections from the foreign exchange reserves managed by SAFE.⁵⁰⁹ A large portion of its assets are located in its subsidiary, Central Huijin Investment Ltd., which holds stakes in China's state-owned commercial banks, policy banks, securities companies, and insurance companies.⁵¹⁰ Members of

⁵⁰⁵ According to a recent report, over 35 of China's largest technology companies have "quietly instituted Party committees in recent years" but declined to give further specifics on the operational role of such committees. Emily Feng, *Chinese Tech Groups Display Closer Ties with the Communist Party*, FINANCIAL TIMES, Oct. 10, 2017.

⁵⁰⁶ U.S.-CHINA ECON. & SEC. REV. COMM'N, 2016 ANNUAL REPORT TO CONGRESS 102 (2016) (stating that, "In their research, Professor Zheng and Curtis Milhaupt, a professor at Columbia Law School, found 95 out of the top 100 private Chinese firms by revenue and eight out of the top ten Internet firms by revenue were founded or are controlled by a current or former member of a central or local political organization such as the People's Congresses and People's Political Consultative Conferences. These connections are integral to a private firm's success, creating and reinforcing important networks to top banks, other leading SOEs, and government regulators.").

⁵⁰⁷ U.S.-CHINA ECON. & SEC. REV. COMM'N, 2016 ANNUAL REPORT TO CONGRESS 102 (2016) ("Private companies are subjected to largely undefined regulations that dilute the rights of corporate owners. Take, for instance, China's state-run industry associations, which were created in the 1990s amid mounting pressure for the government to separate its regulatory power from its business activities. State-run industry associations were meant to provide industrial coordination and private regulation, but they have become quasi-governmental entities: created and staffed by former government officials from defunct ministries, they supervise and coordinate the activities of firms whose ministries have been disbanded. Compulsory participation in these state-led industrial restructuring efforts, along with other forms of pressure from regulators to comply with government-favored policies, contribute to the state's extralegal control over private enterprises.").

⁵⁰⁸ CIC was established as a wholly state-owned enterprise pursuant to the *PRC Company Law. Profile* [Chinese], CHINA INVESTMENT CORP., available at <http://www.china-inv.cn>.

⁵⁰⁹ CIC received a \$200 billion capital injection at its founding and a \$30 billion capital injection in December 2011. CHINA INVESTMENT CORP., 2011 ANNUAL REPORT (2011); Lingling Wei, *China's CIC Works on Funding Mechanism*, THE WALL STREET JOURNAL, Mar. 6, 2012.

⁵¹⁰ Central Huijin Investment Ltd. stakes include Agricultural Bank of China, Industrial and Commercial Bank of China, and CDB. *Shareholdings* [Chinese], CENTRAL HUIJIN INVESTMENT LTD, http://www.huijin-inv.cn/wps/portal/!ut/p/a1/jZDLDoIwEEW_yMxYsOCygPKQ6oIQsRvSGIEmUoghLvX6q2FrcXY3OSf3ZkBABULLp2rlpAYt758saH1EiuuwwAw52yPzccdpTtkbiYGOAiwHCmCWulyOi6xNMoyCJvC1HTKnN9ws6-_jjGP7nW4CF_dkXsPSbAvLgIW9BjHLqVko3A1Td0N_qq4YzCGvDgSwArjMDthcubRz7sqxeeVOkir0BYO0FNg!!/dl5/d5/L2dBISvZ0FBIS9nQSEh (last visited Nov. 20, 2017).

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CIC's supervisory committee and executive board include current and former government officials.⁵¹¹

CIC is tasked with “implementing the diversification of investments of national foreign exchange reserves.”⁵¹² In fulfilling this role, CIC has not only made portfolio investments, but also purchased substantial equity shares in U.S. financial institutions and companies in the energy and resource sectors, including the U.S. energy company AES.⁵¹³ In recent years, CIC has played a more indirect role by contributing capital to other funds. Notably, CIC contributed \$550 million to the Asia-Germany Industrial Promotion Capital (AGIC), a private Chinese-owned investment fund based in Germany targeting investment in European “Industry 4.0”⁵¹⁴ enterprises.⁵¹⁵

Since 2007, state-backed funds and investment companies have proliferated, to the extent that these entities now constitute a central feature of China's technology acquisition strategy. In a 2016 report, the Mercator Institute observes that:

Sovereign investment funds and governmental investment management companies play an increasing role in high-tech FDI. While these funds and their management often present themselves as private enterprises, the state's active role is concealed behind an opaque network of ownership and funding structures. The State Council and local governments primarily use these funds and the expertise of private managers to make subsidies to Chinese enterprises more efficient. These funds are now becoming increasingly active with regard to investment in overseas markets.⁵¹⁶

One of the largest state-backed funds is the National IC Fund. This fund was established in September 2014, soon after the June 2014 release of the *IC Guidelines*. The Semiconductor

⁵¹¹ CIC's supervisory committee consists of representatives from MOF, PBOC, and other government organs. Its executive board is staffed primarily by former government officials. *Executive Committee* [Chinese], CHINA INVESTMENT CORP, http://www.china-inv.cn/wps/portal/!ut/p/a1/jZBNC4JAEIZ_Ucy02mrHVcsP3CJEs3IEqkLuUpIh359Jl1dndvA8_DOvCCgAKHIW9VyUJ2Wz98uaHICils_wwQ5OyJz8cDPVkyZ43AbR4IbWL0L7u_74cssp0UEW2XYBx4UeDsOWJM1_k4MwzX-

[QZg4f9kAgz5Ywb5cZ_XIH05NBulqw6Kpmsf5V3DFYQxIbPMwNTwBJgqXLqxb_M8Lz5plcXqCxDtLo!/dl5/d5/L2dBISEvZ0FBIS9nQSEh/](http://www.china-inv.cn/wps/portal/!ut/p/a1/jZBNC4JAEIZ_Ucy02mrHVcsP3CJEs3IEqkLuUpIh359Jl1dndvA8_DOvCCgAKHIW9VyUJ2Wz98uaHICils_wwQ5OyJz8cDPVkyZ43AbR4IbWL0L7u_74cssp0UEW2XYBx4UeDsOWJM1_k4MwzX-QZg4f9kAgz5Ywb5cZ_XIH05NBulqw6Kpmsf5V3DFYQxIbPMwNTwBJgqXLqxb_M8Lz5plcXqCxDtLo!/dl5/d5/L2dBISEvZ0FBIS9nQSEh/) (last visited Nov. 20, 2017).

⁵¹² *Profile* [Chinese], CHINA INVESTMENT CORP., http://www.china-inv.cn/wps/portal/!ut/p/a1/jZHRCoIwGIWfpQeI_U2ddjm1dOKKkMh2IyNSBzklpIuePpVunZ67H77DOfwHCZQjoeVHVbJXrZav8RakOAGBXZBBApwegXpw4GcrwdRxBuA-D0Q2Nvp96-8PIhrbbgoAtoeBhX4cunsOwMg6P8yIgtF_Weg_AqvyDcDC_5IJMPQfAvCbB7xCopN9vVW6bFFet82zeGh0Q8KYkFlmYFpoAkwTLHU0d-AEdc11UP5Ny4wpRjc_2EaqQw!/dl5/d5/L2dBISEvZ0FBIS9nQSEh/ (last visited Nov. 20, 2017).

⁵¹³ See IACOB KOCH-WESER, OWEN HAACKE, U.S.-CHINA ECON. & SEC. REV. COMM'N, CHINA INVESTMENT CORPORATION: RECENT DEVELOPMENTS IN PERFORMANCE, STRATEGY, AND GOVERNANCE 29 (June 13, 2014); Eiichi Sekine, *China Investment Corporation: Investment Performance in 2010 and Outlook*, 3 NOMURA J. OF CAPITAL MARKETS 6 (Winter 2012).

⁵¹⁴ “Industry 4.0” refers to the “fourth industrial revolution” resulting from the integration of the “internet of things” into the entire industrial value chain. See Bill Lydon, *Industry 4.0: Intelligent and flexible production*, 63 INTECH 12–17 (2016).

⁵¹⁵ Jost Wübbeke, et al., MERICS, MADE IN CHINA 2025: THE MAKING OF A HIGH-TECH SUPERPOWER AND CONSEQUENCES FOR INDUSTRIAL COUNTRIES 53 (Dec. 2016).

⁵¹⁶ Jost Wübbeke, et al., MERICS, MADE IN CHINA 2025: THE MAKING OF A HIGH-TECH SUPERPOWER AND CONSEQUENCES FOR INDUSTRIAL COUNTRIES 53 (Dec. 2016).

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Industry Association (SIA) reports that, to date, the National IC Fund has secured approximately \$21 billion in funding.⁵¹⁷ The fund has used these resources to support numerous technology-related outbound investments in the United States (see Section IV.C.2 for further discussion).

A media article by China's official state-run news agency, *Xinhua News*, reposted on the website of the MOF, states that the National IC Fund will adopt a variety of investment forms, including equity investment, with a focus on the integrated circuit and microchip manufacturing industry, in order to "propel enterprises to upgrade their industrial capacity level and implement mergers, restructuring, and standardized enterprise management."⁵¹⁸ The article further states that the IC Fund was established "under the guidance" of MIIT and MOF, and lists several large SOEs and state-owned financial institutions as key capital contributors, including:⁵¹⁹

- China Development Bank Capital, a subsidiary of the state-owned policy bank CDB;⁵²⁰
- China National Tobacco Corp., a central SOE that administers a quasi-monopoly in China's tobacco sector;⁵²¹
- China Mobile Communications Corporation, a central SOE and market leader in China's telecommunications sector;⁵²²
- Beijing E-Town International Investment and Development Co., Ltd. (Beijing E-Town), an investment company owned by the municipal government of Beijing,⁵²³ which has made several technology-related investments in the United States (see further discussion below and in Section IV.C.2);

⁵¹⁷ SEMICONDUCTOR INDUSTRY ASSOCIATION [*hereinafter* "SIA"], *Submission, Section 301 Hearing 6* (Oct. 5, 2017).

⁵¹⁸ *National Integrated Circuit Industry Investment Fund Officially Established* [Chinese], XINHUA NEWS, Oct.14, 2014, available at http://www.mof.gov.cn/zhengwuxinxi/caizhengxinwen/201410/t20141014_1149902.html.

⁵¹⁹ *National Integrated Circuit Industry Investment Fund Officially Established* [Chinese], XINHUA NEWS, Oct.14, 2014, available at http://www.mof.gov.cn/zhengwuxinxi/caizhengxinwen/201410/t20141014_1149902.html.

⁵²⁰ See China Development Bank Capital, available at <http://www.cdb-intl.com/eng/about/about.htm>. See also *Capital Markets – Company Overview of China Development Bank Capital Corporation Ltd.*, BLOOMBERG, available at <https://www.bloomberg.com/research/stocks/private/snapshot.asp?privcapId=115838167> (last visited Nov. 20, 2017) ("China Development Bank Capital Corporation Ltd. is an investment arm of China Development Bank specializing in direct, mezzanine, and fund of fund investments. For direct investments, the firm specializes in growth capital, pre-IPO investments, mergers & acquisition, and restructuring. It seeks to make direct investments in new energy, healthcare, environmental protection technologies, oil and gas supply, and industrials sectors.").

⁵²¹ China Tobacco Overview [Chinese], State Tobacco Monopoly Bureau, available at www.tobacco.gov.cn/html/10/1004.html.

⁵²² China Mobile Communications Corporation is administered by SASAC. See SASAC, Enterprise List [Chinese], available at <http://www.sasac.gov.cn/n2588035/n2641579/n2641645/index.html>.

⁵²³ *Company Introduction* [Chinese], BEIJING E-TOWN, http://www.etowncapital.com/comcontent_detail/columnsId=36&&i=2&comContentId=2.html, (last visited Nov.20, 2017).

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- Shanghai Guosheng (Group) Co., Ltd., an investment company owned by the municipal government of Shanghai;
- Tsinghua Unigroup, a company owned by Tsinghua University, a public university, which has attempted to make several technology-related investments in the United States (see above for further discussion);
- China Electronics Technology Group Corporation, a state-owned defense enterprise established under the former Ministry of Electronics Industry (now part of MIIT), which describes itself as an “important state-owned backbone enterprise directly administered by the central government.”⁵²⁴

A 2017 corporate filing, relating to the acquisition of a National IC Fund-invested company, discloses further information on the National IC Fund’s shareholders. The list contains 19 entities, the largest of which are the government ministry MOF (25.95 percent), China Development Bank Capital (23.07 percent), China National Tobacco Corp. (14.42 percent), and Beijing E-Town (7.21 percent).⁵²⁵ The fund has used part of this capital to collaborate with its founding capital contributors. For example, in February 2015, the fund provided Tsinghua Unigroup with CNY 10 billion (\$1.6 billion) in equity investment.⁵²⁶

The National IC Fund is part of an “Integrated Circuit Industry Technological Innovation Strategic Alliance” established in March 2017 “in conformity with [...] the guiding spirit of General Secretary Xi Jinping.”⁵²⁷ The objective of the alliance is to “implement the ‘Strong Internet Nation’ strategy, achieve breakthroughs in cutting-edge core technologies, and establish secure and controllable information technology [IT] systems.”⁵²⁸ The alliance comprises “62 leading enterprises, higher-education institutions, research academies, and social organizations,” and is supported by the Ministry of Science and Technology (MOST), NDRC, and MIIT.⁵²⁹

In the period since September 2014, numerous provinces and municipalities have established their own IC Funds, or received capital from the National IC Fund to establish other IC-

⁵²⁴ See CHINA ELECTRONICS TECHNOLOGY GROUP CORPORATION [Chinese], http://www.cetc.com.cn/zgdzkj/_300891/_300895/index.html (last visited Nov.20, 2017).

⁵²⁵ Zhejiang Wansheng Co., *Zhejiang Wansheng Co., Ltd. Public Notice In Response to a Letter from the Shanghai Stock Exchange Requesting Information Disclosure Regarding the Company’s Issuance of Shares to Acquire Assets and Raise Supporting Funds in a Related Party Transaction* [Chinese] (Code 603010, Public Notice 2017-042).

⁵²⁶ Press Release, Tsinghua Unigroup, Tsinghua Unigroup Receives CNY 10 Billion Investment from the National Integrated Circuit Investment Fund [Chinese] (Feb.14, 2015), *available at* <http://www.unigroup.com.cn/newscenter/jtxw/2015/0214/138.html>.

⁵²⁷ Press Release, China National Science and Technology Major Project, Integrated Circuit Industry Technological Innovation Strategic Alliance Officially Established [Chinese] (Mar. 22, 2017), *available at* http://www.nmp.gov.cn/gzxcgz/jcdl/201703/t20170323_5031.htm.

⁵²⁸ Press Release, China National Science and Technology Major Project, Integrated Circuit Industry Technological Innovation Strategic Alliance Officially Established [Chinese] (Mar. 22, 2017), *available at* http://www.nmp.gov.cn/gzxcgz/jcdl/201703/t20170323_5031.htm.

⁵²⁹ Press Release, China National Science and Technology Major Project, Integrated Circuit Industry Technological Innovation Strategic Alliance Officially Established [Chinese] (Mar. 22, 2017), *available at* http://www.nmp.gov.cn/gzxcgz/jcdl/201703/t20170323_5031.htm.

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related funds.⁵³⁰ Reports on the establishment of IC Funds in Hubei,⁵³¹ Fujian,⁵³² and Anhui provinces⁵³³ indicate the high degree of Chinese government involvement in establishing the funds in order to meet national strategic objectives. According to the SIA, provincial and municipal IC funds have raised a staggering sum – more than \$80 billion.⁵³⁴

In addition to funds that specifically target the IC sector, China has developed a number of other funds directed to all high-technology industries identified in the *Made in China 2025 Notice* and *Made in China 2025 Roadmap*. As reported by the U.S. Chamber of Commerce, these funds include:

- (1) *Advanced Manufacturing Industry Investment Fund* – This fund received initial funding of CNY 20 billion (\$3 billion), and aims to support all industries prioritized under the Made in China 2025 policy.

⁵³⁰ The full scope of sub-central IC Funds is difficult to ascertain, as there is no single list published a government website. A publication by the news website Sohu lists 13 IC Funds, located in the following localities (in the order they were established): (1) Beijing municipality (est. July 2014, capital CNY 30 billion (\$4.9 billion)), (2) Hubei province (est. August 2015, capital CNY 30 billion (\$4.8 billion)), (3) Shenzhen municipality (est. October 2015, capital CNY 20 billion (\$3.2 billion)), (4) Guizhou province (est. December 2015, capital CNY 1.8 billion (\$286 million)), (5) Hunan province (est. December 2015, CNY 5 billion (\$795 million)), (6) Xiamen municipality (est. March 2016, capital CNY 16 billion (\$2.4 billion)), (7) Sichuan province (est. March 2016, capital CNY 4 billion (\$604 million)), (8) Guangdong province (est. June 2016, capital CNY 15 billion (\$2.3 billion)), (9) Shaanxi province (est. August 2016, capital CNY 30 billion (\$4.5 billion)), (10) Shanghai municipality (est. December 2016, capital CNY 28.5 billion (\$4.3 billion)), (11) Nanjing municipality (est. December 2016, capital CNY 60 billion (\$9.1 billion)), (12) Wuxi municipality (est. January 2017, capital CNY 20 billion (\$3 billion)), and (13) Kunshan municipality (est. February 2017, capital 10 billion (\$1.5 billion)). See *A Compilation of Domestic Integrated Circuit Industry Funds in Each Locality* [Chinese], SOHU, <https://m.sohu.com/n/481699130/>.

⁵³¹ Hubei established an IC Fund in August 2015 with initial funding of CNY 30 billion (\$4.4 billion). In March 2016, a “national storage equipment” base was established in Wuhan, the capital of Hubei, with support from the Hubei IC Fund and the National IC Fund. Press Release, Wuhan Municipal Government International and IT Office, Construction Begins to Establish National Storage Equipment Base in Our Municipality [Chinese] (Mar. 31, 2016), available at http://www.whwx.gov.cn/zhgl/gzdt/201603/t20160331_68082.html; Press Release, Hubei Province Science and Technology Office, Hubei Establishes CNY 30 billion Integrated Circuit Industry Investment Fund [Chinese] (Aug. 24, 2015), available at http://www.most.gov.cn/dfkj/hub/zxdt/201508/t20150821_121241.htm.

⁵³² The Fujian Anxin Capital Fund was established in June 2016 with funding from the National IC Fund, with pledged capital of at least CNY 46.8 billion (\$7.1 billion). Among the fund’s goals is to “promote domestic and foreign integrated circuit project acquisitions, technological R&D and the new construction and expansion of production lines [...]” At the unveiling of the new fund, National IC Fund Chairman Wang Zhanfu stated: “On one hand, we can break through monopolies, protect national security, and implement national strategic objectives. On the other hand, we can optimize the industrial composition of domestic mobile integrated circuits, and promote the healthy development of industries including manufacturing, materials, and equipment.” *Entering the Structure of the National Integrated Circuit ‘13th Five-year’ Strategy; Pujiang Recreates New Competitive Advantages* [Chinese], PUJIANG NEWS, June 25, 2016, available at <http://www.jinjiang.gov.cn/hm/20160625/89981.html>.

⁵³³ The Anhui province IC Fund was established in May 2017 with CNY 30 billion (\$4.4 billion) in initial funding. Capital contributors to the fund include the National IC Fund, the Chinese Academy of Sciences, the Anhui Province Investment Group, and the Hefei Industrial Investment Group. The fund’s activities will promote IC industry development in Anhui province through various methods, including equity infusions into subsidiary funds, equity investments, and industrial acquisitions. *Anhui Province Establishes CNY 30 Billion Integrated Circuit Industrial Investment Fund* [Chinese], XINHUA NEWS, May 19, 2017, available at http://www.gov.cn/xinwen/201705/19/content_5195371.htm.

⁵³⁴ SIA, *Submission, Section 301 Hearing* 6 (Oct. 5, 2017).

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- (2) *National Strategic Emerging Industries Investment Guiding Fund* – This fund received initial funding of CNY 40 billion (\$6 billion), and focuses on strategic emerging industries.
- (3) *Made in China 2025 Strategic Cooperation* – This fund is a strategic partnership between CDB and the government ministry MIIT, with funding valued at CNY 300 billion (\$44.8 billion). It provides financial support to implementing the Made in China 2025 policy. There are also province-level Made in China 2025 funds in Shaanxi, Gansu, and Sichuan provinces.⁵³⁵

Moreover, China relies on a web of state-backed investment companies to support outbound technology investments. A primary example is Beijing E-Town, which is owned by the Beijing municipal government. As noted above, Beijing E-Town is a capital contributor to the National IC Fund. According to a 2015 presentation by its General Manager, Wang Xiaobo, Beijing E-Town seeks to build a system of funds that includes not only the National IC Industry Fund, but also various province- and municipal-level funds, as well as smaller VC funds, in order to accelerate industrial clustering, incubate innovation, and cultivate an industrial ecosystem.⁵³⁶ As of the end of 2016, Beijing E-Town, on behalf of Beijing municipality, had committed CNY 10 billion (\$1.5 billion) (and already disbursed CNY 1.6 billion (\$242 million)) to the National IC Fund.⁵³⁷

A specific objective of Beijing E-Town is to cluster technology companies in the Beijing Economic-Technological Development Zone.⁵³⁸ A broader objective is to partner with domestic industry leaders to promote international acquisitions to acquire a number of key technologies in the IC industry – including mobile telecom base chips, RF chips, memory chips, insulated-gate bipolar transistors (IGBT) / power electronics, LCD driver chips, CPU chips, and MEMS sensor chips – in order to reduce China’s reliance on IC imports.⁵³⁹ This broader objective aligns closely with government policies outlined in the *IC Guidelines* and other documents.

d) *Military Civil Fusion*

The Chinese government’s interest in securing advanced technology through outbound investment reflects both economic and national security objectives. The close relationship

⁵³⁵ U.S. CHAMBER, *MADE IN CHINA 2025: GLOBAL AMBITIONS BUILT ON LOCAL PROTECTIONS* 63-64 (2017).

⁵³⁶ Wang Xiaobo, Beijing E-Town General Manager, Presentation at TIF China 2015, *Establishing an Investment Financing Platform; Promoting Development of the Integrated Circuit Industry* [Chinese] (Mar. 2015), available at http://www.semi.org/en/sites/semi.org/files/data15/docs/Wangxiaobo_TIF.pdf.

⁵³⁷ *CCXR 2017 Credit Report on Beijing E-Town International Investment and Development Co., Ltd.* 12 [Chinese] (Credit Committee [2017] No. G229-1). See also Wang Xiaobo, Beijing E-Town General Manager, Presentation at TIF China 2015, *Establishing an Investment Financing Platform; Promoting Development of the Integrated Circuit Industry* [Chinese] (Mar. 2015), available at http://www.semi.org/en/sites/semi.org/files/data15/docs/Wangxiaobo_TIF.pdf.

⁵³⁸ Wang Xiaobo, Beijing E-Town General Manager, Presentation at TIF China 2015 *Establishing an Investment Financing Platform; Promoting Development of the Integrated Circuit Industry* [Chinese] (Mar. 2015), available at http://www.semi.org/en/sites/semi.org/files/data15/docs/Wangxiaobo_TIF.pdf.

⁵³⁹ *CCXR 2017 Credit Report on Beijing E-Town International Investment and Development Co., Ltd.* 15 [Chinese] (Credit Committee [2017] No. G229-1).

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between these objectives is reflected in the strategy of “military-civil fusion” (MCF), which is an important driver of government policy and outbound investment patterns. In 2016, China established the country’s first MCF fund, which allocated CNY 2 Billion (\$ 302 million) to fund domestic projects and “overseas acquisitions.”⁵⁴⁰

Elevated as a national strategy by General Secretary Xi Jinping in 2014, MCF embodies China’s national strategic philosophy of coordinating the planning of economic development and national security (i.e. military-defense) to fully realize the rejuvenation of the Chinese nation.⁵⁴¹ MCF emphasizes indigenous development, restriction of inbound FDI, and the absorption of foreign technologies and know-how in key sectors.⁵⁴² The People’s Liberation Army (PLA) has drawn a direct link between MCF policy and overseas investment.⁵⁴³

In June 2017, General Secretary Xi called for focusing MCF on infrastructure, national defense related S&T, weapon and equipment procurement, talent cultivation, and implementing MCF in outer space, cyberspace, biology, new energy, and maritime space.⁵⁴⁴ Fundamentally, MCF captures China’s efforts to leverage its economic scale to more effectively capture and apply technological innovations in the commercial space in a national defense context.

As a national strategy, MCF cuts across economic and industrial development, talent acquisition, and military modernization plans. It calls for the development of integrated MCF information sharing platforms and MCF industry demonstration bases to facilitate S&T resource sharing and collaboration between state laboratories, the PLA, and enterprises, including foreign companies and Sino-foreign joint ventures.⁵⁴⁵

The State Administration for Science, Technology, and Industry for National Defense (SASTIND) oversees implementation of MCF policies within industry and coordinates MCF action across agencies and local governments. SASTIND’s 2016 and 2017 MCF Special Action Plans prioritize expanding defense industry collaborations, “guiding” social investment in military projects, including with private enterprises; implementing import substitution plans for key defense-related materials; establishing MCF investment funds to promote development of dual-use S&T industries; and supporting the “Going Out” for China’s defense industry groups, including enhancing cooperation with foreign governments and promoting the diffusion of China’s civilian nuclear technologies.⁵⁴⁶

⁵⁴⁰ Wang Yuxi, *First Domestic MCF Transfer Results Fund is Established – Total Scale of 2 Billion RMB* [Chinese], SICHUAN DAILY, Sept. 22, 2016, available at http://news.china.com.cn/2016-09/22/content_39347495.htm.

⁵⁴¹ *Xi Urges Efforts to Boost Integrated Military and Civilian Development*, XINHUA NEWS, June 21, 2017, available at http://news.xinhuanet.com/english/2017-06/21/c_136381507.htm.

⁵⁴² *IGCC Report*, 155.

⁵⁴³ Jiang Luming, *Comprehensively Planning an Overall Strategy for National Security and Development* [Chinese], PLA DAILY June 2, 2016, available at http://www.81.cn/gfbmap/content/2016-06/02/content_146372.htm.

⁵⁴⁴ *Xi Urges Efforts to Boost Integrated Military and Civilian Development*, XINHUA NEWS, June 21, 2017, available at http://news.xinhuanet.com/english/2017-06/21/c_136381507.htm.

⁵⁴⁵ *See Description of National New Industrial Demonstration Base* [Chinese], MIIT, available at <http://sfjd.miit.gov.cn/BaseInfoAction!findListIndustry.action>. See also *Notice of the MIIT General Office on Organizing the Establishment of the 2015 “National New Industrialization Demonstration Base”* (MIIT Gong Xin Ting Gui Han [2015] No. 319, May 12, 2015).

⁵⁴⁶ *2017 SASTIND Military-Civilian Fusion Special Action Plan* (State Administration of Science, Industry, and Industry for National Defense, published June 23, 2017); *2016 SASTIND Military-Civilian Fusion Special Action*

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The State Council Notice on the Issuance of the Next Generation Artificial Intelligence Development Plan specifically calls for strengthening MCF in the artificial intelligence (AI) domain and developing “a new generation of AI technology as a support to command and decision-making, military deduction, defense equipment, and other applications.”⁵⁴⁷

C. Impact of Policies and Implementing Measures on Chinese Investment in the United States

This section considers how the policies and implementing measures outlined above impact Chinese investment in the United States.

Certain public hearing participants in the investigation have asserted that all Chinese investment in the United States is driven by market considerations – not government policy.⁵⁴⁸ According to these participants, government policies and measures are essentially irrelevant to outbound investment decisions.⁵⁴⁹ USTR does not find these statements persuasive.

Certain evidence in the record suggests that Chinese OFDI often reflects commercial considerations. These factors include commercial interest in acquiring technology and R&D facilities, financial diversification, acquisitions of consumer-oriented assets, localization of production inside tariff boundaries, and the possibility of a CNY devaluation.⁵⁵⁰

Plan (MOST, Guo Gong Ji [2016] No. 204, issued Mar. 16, 2016).

⁵⁴⁷ *State Council Notice on Issuing the Next-Generation of Artificial Intelligence Development Plan* § 3(4) (State Council, Guo Fa [2017] No. 35, issued Aug. 20, 2017). For full translation and analysis, see Graham Webster, et al., *China’s Plan to ‘Lead in AI: Purpose, Prospects, and Problems*, NEW AMERICA CYBERSECURITY INITIATIVE (Aug. 1, 2017), available at <https://www.newamerica.org/cybersecurity-initiative/blog/chinas-plan-lead-ai-purpose-prospects-and-problems/>.

⁵⁴⁸ See, e.g., Wang Guiqing, CCCME, *Testimony, Section 301 Hearing* 158-9 (Oct. 10, 2017) (business operations and acquisitions are “market oriented,” and “[t]here is no intervention by the Chinese government in companies’ business decisions”); John Tang, DHH, *Testimony, Section 301 Hearing* 154 (Oct. 10, 2017) (“Chinese companies including our firm have made billions of investments in the U.S. These investments are purely driven by market need. [...] [P]olitics does not have an influence on the business decisions.”); CCCME, *Submission, Section 301 Hearing* 11 (Sept. 28, 2017) (stating that, “Chinese companies can choose any project independently and there are no government-motivated actions.”); DHH, *Submission, Section 301 Hearing* 7 (Sept. 28, 2017) (“Chinese acquisitions overseas (including intellectual property) are not driven by the government, but instead by market need.”); CCOIC, *Submission, Section 301 Hearing* 64-5 (Sept. 26, 2017) (stating that “Chinese companies’ investment and acquisition in U.S. companies is normal commercial behavior, with no government direction behind it.”).

⁵⁴⁹ One witness from the China General Chamber of Commerce testified that “every specific acquisition deal is decided by the companies based on their own business strategy and market opportunities [...]”. Chen Xu, CHINA GENERAL CHAMBER OF COMMERCE [*hereinafter* “CGCC”], *Testimony, Section 301 Hearing* 147-48 (Oct. 10, 2017). But this witness also underscored the importance of Chinese government policy in shaping and directing outbound investment. See, e.g., *id.* at 176 (observing that, in the context of increased real estate investment into the United States, “China’s central bank and China’s central government, of course, will maybe redirect or reconcile the direction of China’s investment into the U.S. market. It is very necessary, I think.”); see also *id.* at 178.

⁵⁵⁰ RHODIUM, *Submission, Section 301 Hearing* 3 (Sept. 28, 2017); see also *China Investment in Silicon Valley: The Rise of Chinese Investment in U.S. Tech Companies*, CBINSIGHTS, available at https://www.cbinsights.com/reports/CB-Insights_China-in-US_webinar.pdf (last visited Nov. 20, 2017).

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But the record also compels the conclusion that the state plays a vital role in shaping and facilitating outbound investment activity. As some participants observe, China is a managed economy,⁵⁵¹ and the influence of the government is pervasive. As discussed above, a range of measures – such as control over foreign exchange, state-backed financing, and outbound investment approvals – give the state considerable ability to channel outbound investment to effect state policy objectives.⁵⁵²

Below, aggregate data and trends are examined, as well as specific transactions, to show how government policies and measures are shaping investment flows. USTR has found that, at multiple levels of government – central, regional, and local – the Chinese state has directed and facilitated investment in, and acquisition of, U.S. companies and assets in technology-intensive sectors and in U.S. technology centers such as Silicon Valley.

1. Chinese Investment Activity in the United States: Analysis of Data

China's OFDI has accelerated over the decade since China began to articulate and implement the policies outlined in Section IV.B. China's Ministry of Commerce (MOFCOM) reports that China's OFDI flows totaled \$145.7 billion in 2015 and \$196.1 billion in 2016 – a new record, and a substantial increase over the \$21.1 billion reported in 2006.⁵⁵³ Likewise, data from the United Nations Conference on Trade and Development (UNCTAD) shows that between 2009 and 2016, enterprises from China transacted 2,715 cross-border merger and acquisition (M&A) deals, compared to 1,250 deals in the 1990-2008 period.⁵⁵⁴

The growth of Chinese investment in the United States is evident in each of the primary sources of data: the U.S. Bureau of Economic Analysis (BEA), the *China Global Investment Tracker* (AEI), and the *China Investment Monitor* (Rhodium Group, or “Rhodium”). Based on data collected under a balance-of-payments approach, BEA estimates that flows of Chinese OFDI into the United States rose by 835 percent, from \$1.1 billion in 2011 to \$10.3 billion in 2016 (see Figure 1).⁵⁵⁵

⁵⁵¹ See, e.g., James Lewis, CENTER FOR STRATEGIC AND INTERNATIONAL STUDIES [*hereinafter* “CSIS”], *Submission, Section 301 Hearing 1-2* (Sept. 2017).

⁵⁵² For these reasons, the suggestion by certain participants that the Chinese government simply provides “more information to the companies” to help them invest is not credible. Liu Chiao, CCOIC, *Testimony, Section 301 Hearing 182* (Oct. 10, 2017).

⁵⁵³ See MOFCOM, NBS, and SAFE *Jointly Issue Statistical Bulletin of China's Outward Foreign Direct Investment*, available at <http://hzs.mofcom.gov.cn/article/date/201612/20161202103624.shtml>, and the *2006 Statistical Bulletin of China's Outward Foreign Direct Investment* [Chinese], available at <http://images.mofcom.gov.cn/hzs/accessory/200709/1190343657984.pdf>.

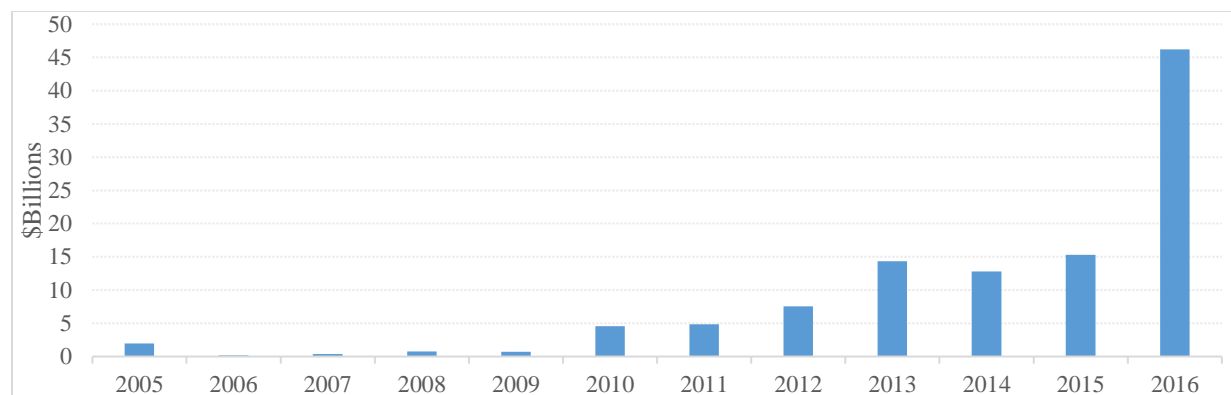
⁵⁵⁴ Calculations based on UNCTAD, *Annex Table 12. Number of Cross-border M&As by Region/Economy of Purchaser, 1990-2016*, available at <http://unctad.org/en/Pages/DIAE/World%20Investment%20Report/Annex-Tables.aspx>.

⁵⁵⁵ *Foreign Direct Investment in the United States*, BEA (2017), https://www.bea.gov/iTable/index_MNC.cfm (last visited Oct. 25, 2017). BEA collects data from legally mandated surveys of foreign-owned affiliates operating in the United States. BEA data cover all completed FDI transactions based on the value of dollars “crossing the border” in a year, per the Balance of Payments Guidelines.

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Although AEI and Rhodium employ different methodologies for collecting investment data, they also show an increasing trend over this period.⁵⁵⁶ AEI data indicate a very large increase (*i.e.*, 2,460 percent), with investment rising from \$2.2 billion in 2011 to \$53.7 billion in 2016. In 2017, Chinese investment in the United States totaled \$24.2 billion, representing a significant year-on-year decline, but still marking the second-highest annual total on record.⁵⁵⁷ Likewise, Rhodium data shows cumulative Chinese OFDI into the United States growing from a mere \$4.9 billion in 2011 to \$45.2 billion in 2016 – an increase of 843 percent.⁵⁵⁸

Figure 1: Chinese OFDI Flows in the United States⁵⁵⁹



At the same time, Chinese OFDI has shifted away from predominantly “greenfield” investment,⁵⁶⁰ towards an investment model driven primarily by acquisitions. In 2000, while at low levels, greenfield investment constituted 99.6 percent of all Chinese OFDI flows by value; in

⁵⁵⁶ AEI compiles data from publicly available or voluntarily submitted information, for all announced investment transactions over \$100 million in value. This data is premised on the entire value of the transaction, including U.S. domestic financing (*e.g.*, bonds and loans) for projects. *China Global Investment Tracker* (Jan. 2018), AMERICAN ENTERPRISE INSTITUTE, available at <http://www.aei.org/china-global-investment-tracker> (last visited Oct. 25, 2017). For its part, Rhodium collects data through publicly available or voluntarily submitted information, for completed direct investment transactions valued at \$500,000 or more. Transaction values are based on the entire value of transaction, including U.S. domestic financing (*e.g.*, bonds and loans) for projects. *China Investment Monitor* (2017), RHODIUM, available at <http://rhg.com/interactive/china-investment-monitor> (last visited Oct. 25, 2017).

⁵⁵⁷ *China Global Investment Tracker* (Jan. 2018), AEI, available at <http://www.aei.org/china-global-investment-tracker> (last visited Oct. 25, 2017).

⁵⁵⁸ *China Investment Monitor* (2017), RHODIUM, <http://rhg.com/interactive/china-investment-monitor> (last visited Oct. 25, 2017).

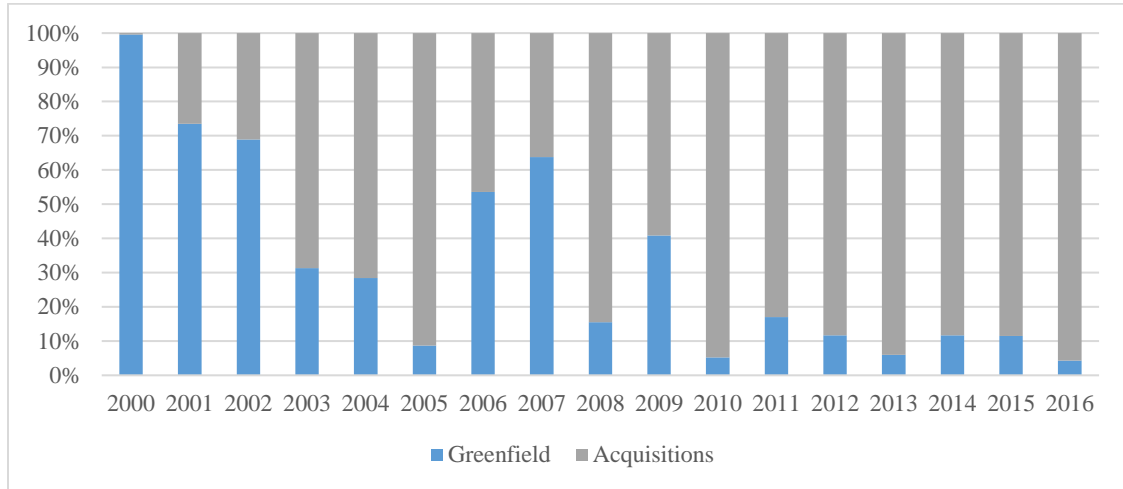
⁵⁵⁹ *China Investment Monitor* (2017), RHODIUM, <http://rhg.com/interactive/china-investment-monitor> (last visited Oct. 25, 2017).

⁵⁶⁰ For a definition of Greenfield investment, see Erik Canton, Irune Solera, *Greenfield Foreign Direct Investment and Structural Reforms in Europe: What Factors Determine Investments?*, prepared for the European Commission Directorate-General for Economic and Financial Affairs 033 3 (June 2016) (“Three main types of FDI can be distinguished, namely cross-border mergers and acquisitions, greenfield investments and the extension of existing capacity. According to the definition in the data source this paper focuses on the last two: greenfield investments – the creation of a firm from scratch by one or more nonresident investors – and the extension of capacity – an increase in the capital of already established foreign enterprises. [...] Greenfield FDI thus implies an expansion of the capital stock, directly generating new economic activity and jobs. It is also a vehicle for international technology spillovers, and can thereby contribute to productivity growth.”).

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2005-2009, greenfield investments accounted for 22.7 percent of OFDI.⁵⁶¹ In contrast, from 2010 to 2016, greenfield investments made up only 7.6 percent of OFDI, whereas acquisitions accounted for 92.4 percent (*see* Figure 2).

Figure 2: Chinese OFDI in the United States: Greenfield vs. Acquisitions⁵⁶²



Chinese SOEs have played an important role in shaping these investment flows. From 2000 to 2016, 351 of the 1,395 acquisitions (25 percent) were carried out by government-owned enterprises, which accounted for 29 percent of the monetary value of these deals.⁵⁶³

Chinese OFDI also has grown significantly in technology- and innovation-related sectors targeted by Chinese industrial policies. Figure 3 reflects the growth in Chinese OFDI flows into the United States, with respect to seven sectors – automobiles, aviation, electronics, energy, health and biotechnology, industrial machinery (including robotics), and ICT. As this chart reflects, aggregate growth for this group of sectors has risen considerably, from \$1.9 billion in 2005 to \$9.8 billion in 2016. Annual investment totals were particularly high for this group during the 2013-2016 period, when the average annual OFDI was \$6.9 billion.

Figure 3: Chinese OFDI in the United States: Technology-related Sectors⁵⁶⁴

⁵⁶¹ *China Investment Monitor* (2017), RHODIUM, <http://rhg.com/interactive/china-investment-monitor> (last visited Oct. 25, 2017).

⁵⁶² *China Investment Monitor* (2017), RHODIUM, <http://rhg.com/interactive/china-investment-monitor> (last visited Oct. 25, 2017).

⁵⁶³ *China Investment Monitor* (2017), RHODIUM, <http://rhg.com/interactive/china-investment-monitor> (last visited Oct. 25, 2017). Rhodium defines “government-owned enterprises” as central SOEs under State-Owned Assets Supervision Administration and Commission, local SOEs controlled by provincial or municipal governments, sovereign investors, and any other entities that have more than 20 percent combined government ownership. *Sources and Methodology* (2017), RHODIUM, <http://rhg.com/wp-content/themes/rhodium/interactive/china-investment-monitor/sources-and-methodology.html> (last visited Oct. 31, 2017). *See also* Thilo Hanneman, Daniel H. Rosen, RHODIUM, CHINESE INVESTMENT IN THE UNITED STATES: RECENT TRENDS AND THE POLICY AGENDA 66 (Dec. 2016).

⁵⁶⁴ *China Investment Monitor* (2017), RHODIUM, <http://rhg.com/interactive/china-investment-monitor> (last visited Oct. 25, 2017). The sectors identified in the chart are intended to be a representative basket of technology-related

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Although trends vary from sector to sector, investment has generally risen significantly across each of the seven sectors.⁵⁶⁵

- Automotive:** Prior to 2014, the largest annual Chinese investment in the U.S. automotive industry was \$474 million, in 2010. During the 2009-2013 period, the average annual investment inflow was \$214 million. In 2014, investment flows in this sector increased to \$771 million, and have risen each subsequent year (\$915 million in 2015 and \$1.0 billion in 2016).⁵⁶⁶
- Aviation:** According to Rhodium, prior to 2010 there was no Chinese investment in the U.S. aviation industry. In 2010, Chinese OFDI was \$5 million in this sector, growing to \$401 million in 2011. The annual average OFDI from 2012 through 2016 was \$66 million. Chinese worldwide investment patterns are more pronounced in this sector. AEI reports that in the 2005-2013 period, there were only 7 investment transactions worldwide, totaling \$2.5 billion; since the start of 2014, there have been 17, totaling \$19.8 billion (of which \$10.4 billion resulted from a single investment in the United States).⁵⁶⁷
- Electronics:** From 2009 through 2014, the annual average Chinese investment in the U.S. electronics industry was \$49 million. In 2015, inflows increased nearly six-fold from the prior year to \$349 million, and then increased twelve-fold over those levels to \$4.2 billion, in 2016.
- Energy:** Before 2010, the largest annual Chinese investment in the U.S. energy industry was \$212 million, in 2009. In the first decade of the 21st century, the annual average investment

industries, drawn from Rhodium data, and not a comprehensive list. Other sectors not identified here also may have a nexus to technology or innovation.

⁵⁶⁵ Unless otherwise indicated, data in this paragraph is drawn from *China Investment Monitor* (2017), RHODIUM, <http://rhg.com/interactive/china-investment-monitor> (last visited Oct. 25, 2017).

⁵⁶⁶ *China Global Investment Tracker* (2018), AEI, available at <http://www.aei.org/china-global-investment-tracker>, (last visited Oct. 25, 2017).

⁵⁶⁷ *China Global Investment Tracker* (2018), AEI, <http://www.aei.org/china-global-investment-tracker>, (last visited Oct. 25, 2017). AEI data includes announced deals, as well as completed transactions; it is possible that some of these transactions have not closed as of the date of publication of this report.

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inflow was a mere \$52.6 million. In 2010, investment in this sector rose to \$2.8 billion, and reached a high of \$3.6 billion in 2013; levels declined thereafter. Chinese worldwide investment patterns show a clear shift to investment in alternative energy⁵⁶⁸ since 2013. AEI reports that, in the 2005-2013 period, China's average annual worldwide investment in alternative energy was \$673 million. This average rose to \$4.2 billion during the 2014-2017 period. As reported by AEI, China's only investments in the U.S. energy sector in 2016 and 2017 were in alternative energy, amounting to \$150 million and \$230 million, respectively.⁵⁶⁹

- **Health and Biotechnology:** During the 2009-2013 period, annual Chinese investment in the U.S. health and biotechnology industry averaged \$116 million. In 2014, investment in this sector grew rapidly to \$1.0 billion, and remained at higher levels in 2015 (\$900 million) and 2016 (\$1.0 billion).
- **Information and Communication Technology (ICT):** Before 2014, the largest annual Chinese investment in the U.S. ICT industry was \$1.9 billion, in 2005. In 2009-2013, annual average investment inflow was \$312 million. In 2014, investment in this sector rose to \$5.9 billion and remained at higher levels in 2015 (\$1.3 billion) and 2016 (\$3.3 billion).
- **Industrial Machinery (including Robotics):** The largest annual inflow of investment in industrial machinery and equipment was in 2010, in which investment totaled \$218 million. Average annual investment fell to \$15-\$45 million in 2011-2014. Then, in 2015 and 2016, investment in this industry returned to near-record high levels of \$214 million and \$207 million, respectively.

2. Effect of State Policies and Implementing Measures on Chinese Acquisitions

Growth in Chinese technology investment coincides with an array of policy statements and implementing measures that are geared to promote technology transfer. As discussed in Section IV.B, above, over the past 10-15 years, the Chinese government has deployed a series of state industrial plans, approval mechanisms, and support measures designed to direct and facilitate outbound investment in technology-related sectors.⁵⁷⁰ The edifice of policies and implementing measures has grown more elaborate over time, and increasingly tailored to specific sectors. Likewise, aggregate Chinese OFDI in technology has witnessed a substantial increase over this period, particularly since 2009.

This apparent temporal relationship is particularly evident in certain sectors and industries, such as semiconductors. As discussed in Section IV.B.4, above, the Chinese government announced

⁵⁶⁸ "Alternative energy" includes non-fossil fuel energy investments, including renewable energy such as wind and solar, and nuclear energy. According to AEI data, most of the "alternative energy" investments fall under renewable energy, though there are some nuclear transactions, mostly in European countries. *China Global Investment Tracker* (2018), AEI, <http://www.aei.org/china-global-investment-tracker>, (last visited Oct. 25, 2017).

⁵⁶⁹ *China Global Investment Tracker* (2018), AEI, <http://www.aei.org/china-global-investment-tracker>, (last visited Oct. 25, 2017). AEI data includes announced deals, as well as completed transactions; it is possible that some of these transactions have not closed as of the date of this report's publication.

⁵⁷⁰ As discussed in Section IV.B.1., the antecedents of this policy change were present as early as 2000 with the introduction of the "Going Out" strategy.

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in 2014 a policy to accelerate the development of the IC industry, including semiconductors. Prior to this announcement, global outbound Chinese investment in semiconductor manufacturing did not exceed \$1 billion in a single year. In 2014, the value of announced Chinese acquisitions increased to \$3 billion, and in 2015 surged to \$35 billion.⁵⁷¹

Thus, the aggregate data suggest a possible causal link between state policies and implementing measures, on the one hand, and trends in technology-driven OFDI, on the other. Indeed, given the scope and scale of these measures, it would be surprising if they had no effect on investment flows.

To further examine the impact of state measures on OFDI, USTR reviewed hundreds of reported transactions, in the following technology-intensive sectors: (1) aviation, (2) integrated circuits, (3) information technology, (4) biotechnology, (5) industrial machinery, (6) renewable energy, and (7) automotive. Several of these transactions are discussed in detail below and are presented as representative examples. The analysis is based on publicly available information concerning these transactions, and given the difficulty of obtaining information on the precise role of the government and CCP in individual cases, there are limits to the information available concerning each transaction.

Nonetheless, the evidence establishes that Chinese government policies and measures have had a significant effect on investment in each of the technology-intensive sectors examined. At multiple levels of government – central, regional, and local – the Chinese state has directed and facilitated the acquisition of U.S. companies and assets in these sectors. In the representative examples provided, the transactions align with state objectives and policies, and are often undertaken by SOEs that are, by definition, owned and controlled by the government. Even when undertaken by companies in which the government does not own an observable controlling stake, the transactions identified are frequently guided and directed by the state. CCP members often act as board members and officers of these companies, and are responsive to state directives. In addition, many of these transactions are funded by state-owned entities or banks, often in situations where comparable commercial financing would have been unavailable.

a) Aviation

Government Policies

Chinese investments in the U.S. general aviation (GA) industry illustrate the role of Chinese government policies in directing the commercial activities of Chinese companies.

Obtaining and developing cutting-edge technology in the aviation sector has long been an objective of the Chinese government. As discussed above, aviation technology has featured in numerous state planning documents, such as the *MLP* and the *State Council Opinions on Deepening Reform of the National Defense Science and Technology Industry Investment System*, the measure which called for development of *National Defense Science & Technology Social*

⁵⁷¹ RHODIUM, *Submission, Section 301 Hearing 4* (Sept. 28, 2017). Rhodium finds that there is a “readily apparent” nexus between Chinese industrial policy and outbound investment in the semiconductor industry.

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Investment Guidance Catalogue, which specifically targets aviation.⁵⁷² Several five-year plans for China's civil aviation industry underscore the government's objective of developing this technology,⁵⁷³ as do opinions and directives issued by government ministries such as MOST and SASTIND.⁵⁷⁴ These documents confirm that the pursuit of aviation technology is intended to fulfill both civil and military objectives.⁵⁷⁵

Reflecting these objectives, Chinese firms have acquired at least 11 U.S. aviation companies, established three joint ventures, and signed five cooperation agreements since 2005.⁵⁷⁶ The central state-owned Aviation Industry Corporation of China (AVIC)⁵⁷⁷ leads this investment effort, and, since 2010, has spent more than \$3 billion acquiring U.S. and European aviation companies to address key gaps in general aviation technologies.⁵⁷⁸ As the successor to the Ministry of Aviation Industry, AVIC has implicit responsibility for China's state-run aviation sector.⁵⁷⁹ AVIC is also the sole domestic supplier of military aircraft to the PLA.⁵⁸⁰

⁵⁷² *Notice on Issuing the National Medium- and Long-Term Science and Technology Development Plan Outline (2006-2020)* (State Council, Guo Fa [2005] No. 44, issued Dec. 26, 2005); *State Council Opinions on Deepening Reform of the National Defense Science and Technology Industry Investment System* (State Council, Guo Han [2007] No. 9, issued Jan. 30, 2007); *Ministry of Industry and Information Technology, Ministry of Science and Technology, National Defense Science & Technology Social Investment Guidance Catalogue (Release of 2010 Edition)* (MIIT, MOST, issued Dec. 1, 2012).

⁵⁷³ *China Civil Aviation Industry 13th Five-year Development Plan* (CAAC, issued Mar. 2017); *China Civil Aviation Industry 12th Five-year Development Plan* (CAAC, issued Apr. 2011).

⁵⁷⁴ *Provisional Measures on the Administration and Approval of Social Investment Projects of National Defense Science and Technology Industry* (MIIT, Ke Kong Ji [2009] Document No. 1516, issued Dec. 30, 2009) manages approval of investments in the *National Defense Science & Technology Social Investment Guidance Catalogue*; *Opinions Encouraging Technology Transfer and Innovation and Promoting the Transformation of the Growth Mode of Foreign Trade* (MOFCOM, NDRC, MOST, GCA, GTA, SIPO, SAFE, Shang Fu Mao Fa [2006] No. 13, issued July 14, 2006); *2016 SASTIND Military-Civilian Fusion Special Action Plan* (MOST, Guo Gong Ji [2016] No. 204, issued Mar. 16, 2016); *2017 SASTIND Military-Civil Fusion Special Action Plan* (SASTIND, posted June 23, 2017).

⁵⁷⁵ *2017 SASTIND Military-Civil Fusion Special Action Plan*, ¶ 2, the action plan identifies three ways in which aviation technology is to be shared: (1) deepening "civil participation in the military" (2) advancing military transfers to civil, and (3) promoting military-civil resource sharing.

⁵⁷⁶ See Chad J. R. Ohlandt, et al., RAND, CHINESE INVESTMENT IN U.S. AVIATION, prepared for the U.S.-China Economic & Security Review Commission 45, 54-6, (Mar. 29, 2017).

⁵⁷⁷ AVIC is a state-owned industrial conglomerate that focuses on aerospace manufacturing but offers a wide range of goods and services, some of which extend beyond the aerospace sector. See *About Us*, AVIC, <http://www.avic.com/en/aboutwebsite/contactus/index.shtml>, (last visited Dec. 7, 2017) ("The Aviation Industry Corporation of China (AVIC) was founded on November 6th, 2008 through the restructuring and consolidation of the China Aviation Industry Corporation I (AVIC I) and the China Aviation Industry Corporation II (AVIC II). We are centered on aviation and provide complete services to customers in many sectors - from research and development to operation, manufacturing and financing. Our business units cover defense, transport aircrafts, helicopters, avionics and systems, general aviation, research and development, flight testing, trade and logistics, assets management, finance services, engineering and construction, automobiles and more. We have over 100 subsidiaries, nearly 27 listed companies and more than 450,000 employees."). See also *Company Overview of AVIC International Holding Corporation*, BLOOMBERG, <https://www.bloomberg.com/research/stocks/private/snapshot.asp?privcapId=5480121>, (last visited Dec. 7, 2017).

⁵⁷⁸ Greg Levesque, Mark Stokes, POINTE BELLO, BLURRED LINES: MILITARY-CIVIL FUSION AND THE 'GOING-OUT' OF THE CHINESE DEFENSE INDUSTRY 36 (Dec. 2016).

⁵⁷⁹ See *About Us*, AVIC, <http://www.avic.com/en/aboutwebsite/contactus/index.shtml> (last visited Dec. 7, 2017).

⁵⁸⁰ *Moody's Assigns First-time Baa3 Rating to AVIC International*, MOODY'S INVESTOR SERVICE (Aug. 30, 2013).

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AVIC is the focal point of China's plans to develop a globally competitive aerospace industry. The company holds a 38.18 percent stake⁵⁸¹ in Commercial Aircraft Corporation of China, Ltd. (COMAC), which was established by the Chinese government in 2008 for the purpose of designing and producing commercial aircraft, including the C919 single-aisle large commercial aircraft. The C919 project has served as a catalyst for COMAC, as well as smaller Chinese enterprises along the aerospace supply chain, to work with foreign companies on production tooling and manufacturing processes.⁵⁸² This has allowed Chinese aerospace companies – including AVIC itself – to acquire foreign know-how and technology, an important step toward strengthening China's domestic aerospace industry.

AVIC's acquisitions have facilitated the transfer of engine, avionics, and production processes to China, resulting in so-called "breakthroughs" in domestic piston engine technology, solutions to production bottlenecks, and the development of advanced Unmanned Aerial Vehicles (UAV) manufacturing (for both Chinese military use and for export to foreign countries).⁵⁸³ Moreover, AVIC's acquisitions have provided China with a fully integrated general aviation aircraft engine business encompassing marketing, sales, maintenance, repair, and overhaul (MRO), manufacturing, and R&D.⁵⁸⁴ In addition, AVIC acquisitions are supporting its key role in developing China's general aviation infrastructure network⁵⁸⁵ in line with China's civil aviation industry development plans.⁵⁸⁶

Chinese Investments in the U.S. General Aviation Sector

Since 2010, AVIC has acquired the following U.S. companies in the GA sector:

⁵⁸¹ COMMERCIAL AIRCRAFT CORPORATION OF CHINA, 2016 ANNUAL REPORT 54 [Chinese] (Mar. 2017).

⁵⁸² See Micah Springut, Stephen Schlaikjer, David Chen, CENTRA Technology, Inc., *China's Program for Science and Technology Modernization: Implications for American Competitiveness*, prepared for the U.S.-China Economic & Security Review Commission 124-25 (2011) ("China's development of the single-aisle civil airliner C919 is one major project involving multiple multinational suppliers, from whom Chinese companies will learn advanced production tooling and manufacturing processes. Some of the Chinese companies producing subsystems with multinationals will be able to apply their know-how to the J-20 and other military models. Despite both government and corporate technology transfer restrictions and intellectual property guarantees, China's experience working with General Electric and the German firm MTU in producing propulsion units for the C919 could help serve the development of more reliable military jet engines. AVIC subsidiaries, such as Xi'an Aero-engine PLC, also have joint ventures with engine manufacturers Pratt & Whitney, Rolls Royce and Balcke Durr."). See also Chad J.R. Ohlandt, RAND, *Implications of China's Aerospace Industrial Policies* 76 (testimony presented before the U.S.-China Economic and Security Review Commission on Apr. 27, 2016).

⁵⁸³ *The Heart of China's Unmanned Aerial Vehicles Will Be Domestic-Made: Precision Shot to Acquire the Top-Tier Manufacturers in the United States and Germany* [Chinese], PHOENIX MILITARY NEWS, Dec. 6, 2016, available at http://news.ifeng.com/a/20161206/50370941_0.shtml; Lin Feng, *China's 'Trojan Horse' has Entered the U.S. Military Enterprises*, VOICE OF AMERICA MANDARIN SERVICE, Apr. 11, 2017.

⁵⁸⁴ Press Release, Continental Motors, AVIC International Announces the Formation of Continental Motors Group and Expansion into China, Continental Motors (Apr. 10, 2014) available at <http://www.continentalmotors.aero/xPublications/News%20Releases/AVIC%20International%20announces%20the%20Founding%20of%20the%20Continental%20Motors%20Group>.

⁵⁸⁵ *Cirrus Building China GA Infrastructure*, AVIATION INTERNATIONAL NEWS, Apr. 12, 2017.

⁵⁸⁶ *China Civil Aviation Industry 12th Five-year Development Plan* (CAAC, issued Apr. 2011); *China Civil Aviation Industry 13th Five-year Development Plan* (CAAC, issued Mar. 2017).

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- **Epic Aircraft**—acquired by China Aviation Industry General Aircraft Co. (CAIGA), an AVIC subsidiary, for \$4.3 million in April 2010 after a bankruptcy judge approved the asset purchase agreement.⁵⁸⁷ According to the court, CAIGA’s bid was the highest and best offer.⁵⁸⁸ The acquisition included Epic intellectual property and technology.⁵⁸⁹
- **Teledyne Technologies (Continental Motors and Mattituck Services)**—acquired by Technify Motors USA Inc., a subsidiary of AVIC International Holding Corporation, in December 2010 for \$186 million.⁵⁹⁰ Continental Motors⁵⁹¹ is a pioneer in the area of full authority digital engine control (FADEC) technology.⁵⁹²
- **Cirrus Aircraft**—acquired by CAIGA in February 2011 for \$210 million.⁵⁹³ At the time of purchase, Cirrus was the second largest manufacturer of GA aircraft and the largest manufacturer of piston-engine powered GA aircraft.⁵⁹⁴
- **Southern Avionics & Communications Inc.**—acquired by Continental Motors Group in November 2014.⁵⁹⁵ Southern Avionics is a leader in avionics sales, installation, and service. The company represents most major global avionics manufacturers through distribution or representative agreements.⁵⁹⁶
- **United Turbine and UT Aeroparts**—acquired by Continental Motors Group in January 2015.⁵⁹⁷ United Turbine and UT Aeroparts provide turbine aircraft engine and accessory MRO services.
- **Align Aerospace**—acquired by AVIC International in April 2015.⁵⁹⁸ Align provides supply chain services for the aerospace industry and distributes fasteners and other hardware for aerospace original equipment manufacturers.

⁵⁸⁷ *Chinese Firm to Buy Epic Assets*, AVIATION INTERNATIONAL NEWS, Apr. 30, 2010.

⁵⁸⁸ *Chinese Firm to Buy Epic Assets*, AVIATION INTERNATIONAL NEWS, Apr. 30, 2010.

⁵⁸⁹ *Chinese Firm to Buy Epic Assets*, AVIATION INTERNATIONAL NEWS, Apr. 30, 2010.

⁵⁹⁰ Press Release, Teledyne Technologies Inc., Teledyne Technologies Agrees to Sell Teledyne Continental Motors to AVIC International (Dec. 14, 2010).

⁵⁹¹ See *Continental Motors Inc.*, BLOOMBERG, <https://www.bloomberg.com/profiles/companies/0116585D:US-continental-motors-inc> (last visited Dec. 7, 2017) (stating that, “Continental Motors, Inc. produces aviation products. The Company manufactures fuel injected, turbocharged, radial, and horizontally opposed cylinder aircraft piston engines for the aerospace industry.”).

⁵⁹² Bill Cox, *FADEC Comes of Age*, PLANE & PILOT, Feb. 9, 2010.

⁵⁹³ Norihiko Shirouzu, *China to Buy Small U.S. Planemaker*, WALL STREET JOURNAL, Mar. 3, 2011.

⁵⁹⁴ Chad J. R. Ohlandt, et al., RAND, CHINESE INVESTMENT IN U.S. AVIATION, prepared for the U.S.-China Economic and Security Review Commission 49 (Mar. 29, 2017).

⁵⁹⁵ Press Release, Continental Motors, Continental Motors Group Announces Completed Acquisition of Southern Avionics and Communications (Nov. 24, 2014).

⁵⁹⁶ Press Release, Continental Motors, Continental Motors Group Announces Completed Acquisition of Southern Avionics and Communications (Nov. 24, 2014).

⁵⁹⁷ Press Release, Continental Motors, Continental Motors Services Acquires United Turbine and UT Aeroparts Corporations (Feb. 2, 2015).

⁵⁹⁸ Juliet Van Wagenen, *AVIC Looks to Up Global Push with Align Aerospace Acquisition*, AVIATION TODAY, Apr. 2, 2015.

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- **Danbury Aerospace**—acquired by Continental Motors Group in April 2015.⁵⁹⁹ Danbury Aerospace specializes in engine design and certification.⁶⁰⁰ In October 2016, Danbury operations in San Antonio were closed, resulting in layoffs of 57 people.⁶⁰¹

AVIC International Holding Corporation subsidiary Technify Motors GmbH acquired German-based Thielert Aircraft in July 2013.⁶⁰² Thielert's 1.7L engine powered the MQ-10C Gray Eagle UAV, a derivative of the General Atomics Predator drone used by the U.S. Air Force (a defense article that is export controlled by the International Traffic in Arms Regulations, ITAR).⁶⁰³ This engine also has been used in the military versions of the Diamond Aircraft DA42,⁶⁰⁴ a largely composite twin-engine aircraft used for both manned and unmanned surveillance.⁶⁰⁵

AVIC's GA acquisitions in the United States align with Chinese government aviation S&T and industrial development policy directives. For example, the timing of AVIC's acquisition of U.S. piston engine manufacturers follows the December 2009 release of the *National Defense Science and Technology Social Investment Guidance Catalogue*.⁶⁰⁶ Promulgated by MIIT, which regulates the defense industry, the catalogue "guides" domestic investment in defense S&T assets, including UAV manufacturing, and piston engine development and manufacturing.⁶⁰⁷ The use of the term "social investment"⁶⁰⁸ in Chinese denotes the pursuit of investments which

⁵⁹⁹ Press Release, Continental Motors, Continental Motors to Purchase Assets from Danbury Aerospace (May 4, 2015).

⁶⁰⁰ Press Release, Continental Motors, Continental Motors to Purchase Assets from Danbury Aerospace (May 4, 2015). Continental Motors states: "Danbury Aerospace is a holding company that has led the industry in parts manufacturing authorization (PMA) and experimental engine technologies for the certified and experimental piston engine powered segments of the General Aviation market. [...] Its capabilities include PMA design and certification, engine design and certification, operation of a Part 145 Repair Station for piston aircraft engines and parts, manufacturing process design, manufacturing system design and production and sales, service and support."

⁶⁰¹ Rye Druzin, *Aircraft Engine Manufacturer Shuttters San Antonio Factory, Lays Off 56*, MY SAN ANTONIO, Oct. 12, 2016.

⁶⁰² Press Release, Continental Motors, AVIC International Holding Corporation Acquires the Assets of Thielert Aircraft Engines Out of Bankruptcy (July 22, 2013).

⁶⁰³ DEPARTMENT OF DEFENSE, SELECTED ACQUISITION REPORT: MQ-1C UAS GRAY EAGLE 33 (Dec. 31, 2010).

⁶⁰⁴ Civil Aviation Safety Investigation Authority, Ministry of Ecology, Sustainable Development, and Energy (France), EVENTS ASSOCIATED WITH AN ENGINE MALFUNCTION; THIELERT TAE 125 ENGINES 7 (2014). available at <https://www.bea.aero/etudes/thielert.tae125.engines/thielert.tae125.engines.pdf>.

⁶⁰⁵ Technify Motors GmbH key customers are: manufacturers of new piston engine-powered aircraft; fleets and owner/operators of existing aircraft that would convert from gasoline-fueled engines to diesel-fueled engines; owner/operators requiring maintenance and spare parts for their diesel-fueled aircraft engines; and developers/manufacturers/users of UAVs. AVIC International Holding (HK) Limited notification to the Hong Kong Stock Exchange, *Very Substantial Acquisition and Connected Transaction and Application for Whitewash Waiver and Appointment of Independent Financial Adviser and Clawback Offer by AVIC International (HK) Group Limited* (Sept. 19, 2017).

⁶⁰⁶ AVIC's investment activities in the United States significantly ramped up following the release of the *National Defense Science & Technology Social Investment Guidance Catalogue*, as well as other state aviation industrial development policies and the establishment of an aviation industry investment fund, see Mao Haifeng, *China's First National Level Aviation Industry Fund Administration Lists Operations*, XINHUA NEWS, June 28, 2009, available at http://www.gov.cn/jrzq/2009-06/28/content_1352458.htm (last visited Feb. 12, 2018).

⁶⁰⁷ The catalogue specifically identifies manufacturing of unmanned combat aircraft parts, communications, and electronic warfare platforms (§ 5.1.1) and the development and manufacturing of aviation piston engines (§ 5.3.1) as targets for social investment. See *National Defense Science & Technology Social Investment Guidance Catalogue*.

⁶⁰⁸ English translation of Chinese term *shehui touzi*.

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create a positive return to society, including R&D investments that generate a social or public benefit, rather than purely profit.⁶⁰⁹

AVIC's pursuit of state policies is evident in its public statements:

- During a February 2009 meeting between officials from AVIC and the Civil Aviation Administration of China (CAAC), Li Jian, then deputy director of CAAC, stressed that the development of the GA industry was far from meeting central government requirements of economic and social development.⁶¹⁰ In response, then AVIC officer, Xu Zhanbin, replied that the company would promote institutional and technological innovation as soon as possible to achieve breakthroughs in the GA market and effectively promote industry development.⁶¹¹
- AVIC president Tan Ruisong has noted that the group's "coordinated development" of its non-aviation civilian business and military business embodies China's Military-Civil Fusion (MCF) strategy, as well as aviation industry policies.⁶¹² AVIC chairman, Lin Zuoming, publicly stated that "AVIC always regards civil-military integration as its historical mission."⁶¹³
- In July 2010, AVIC, the Tianjin Municipal Government, and China Construction Bank set up a CNY 20 billion (\$3 billion) private equity fund to acquire dual-use technology companies and invest in defense R&D projects that support the restructuring and development of China's aviation industry.⁶¹⁴ When announcing the launch of this fund, AVIC specifically referenced restructuring in the U.S. GA market, suggesting that one objective of this fund was to further acquisitions in the U.S. market.⁶¹⁵

Reflecting the extent of government support of AVIC's commercial activities, both China Exim and PBC have provided financing for AVIC acquisitions in the United States.⁶¹⁶

AVIC International is in the process of transferring ownership of its U.S. GA subsidiaries (*i.e.*,

⁶⁰⁹ *State Council Guiding Opinions on Innovating Systems for Key Sectors to Encourage Social Investment* (State Council, Guo Fa [2014] No. 60, issued Nov. 24, 2014, effective Nov. 14, 2014).

⁶¹⁰ Press Release, Civil Aviation Administration of China, CAA and AVIC Collaborate on the Future of General Aviation [Chinese] (Feb. 18, 2009), *available at* http://www.caac.gov.cn/XWZX/MHYW/200902/t20090218_12250.html.

⁶¹¹ Press Release, Civil Aviation Administration of China, CAA and AVIC Collaborate on the Future of General Aviation [Chinese] (Feb. 18, 2009), *available at* http://www.caac.gov.cn/XWZX/MHYW/200902/t20090218_12250.html.

⁶¹² *Convening of AVIC 2016 Non-Aviation Business & Equity Investment Work Meeting* [Chinese], AVIC, (Apr. 23 2016), *available at* <http://www.avic-intl-capital.com/detail.aspx?cid=1577&siteid=27568>.

⁶¹³ AVIC, TOGETHER WITH US: SOCIAL RESPONSIBILITY REPORT 2014 8 (June 2015).

⁶¹⁴ *China's First Aviation Industry Support Fund Established* [Chinese], CHINA AVIATION NEWS, July 12, 2010, *available at* <http://www.avic.com/cn/xwzx/jqyw/390801.shtml>.

⁶¹⁵ *China's First Aviation Industry Support Fund Established* [Chinese], CHINA AVIATION NEWS, July 12, 2010, *available at* <http://www.avic.com/cn/xwzx/jqyw/390801.shtml>.

⁶¹⁶ AVIC International Holding (HK) Limited notification to the Hong Kong Stock Exchange, *Very Substantial Acquisition and Connected Transaction and Application for Whitewash Waiver and Appointment of Independent Financial Adviser and Clawback Offer by AVIC International (HK) Group Limited* (Sept. 19, 2017).

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Continental Motors and Cirrus) to a separate AVIC-owned company.⁶¹⁷ According to AVIC, the “proposed reorganization is being contemplated by the Company as part of a wider restructuring campaign being implemented by SASAC.”⁶¹⁸ This announcement underscores the extent to which the Chinese government oversees and directs, through SASAC, the commercial activities of SOEs operating in the United States.

AVIC Technology Transfer—Achieving Breakthroughs

AVIC’s U.S. GA acquisitions and its transfer of technology appear to conform to a government-prescribed policy of introducing, digesting, absorbing, and re-innovating foreign acquired technology (see IDAR policy discussed in Section I). Research conducted by a Chinese defense industry analyst documents this IDAR process in relation to AVIC’s GA engine acquisitions in the United States and Europe.⁶¹⁹ According to this report, piston engine technology transferred to China, including Chinese universities, from several sources – including Continental Motors, Thielert Aircraft, and Cirrus Aircraft, as well as joint development agreements covering single engine turboprops and piston engines with Cessna – has led to “breakthroughs” in piston engine technology and production bottlenecks.⁶²⁰ Key breakthroughs were achieved in gasoline-modified heavy oil technology, electric fuel injection technology, and turbocharging.⁶²¹

U.S. companies acquired by AVIC now provide ongoing R&D and fill critical nodes in China’s GA aircraft and piston engine manufacturing industry. For example, in April 2014, AVIC announced the consolidation of “its aircraft engine businesses under a single corporate structure” — Hong Kong incorporated Continental Motors Group Limited (CMG).⁶²² Following the incorporation of CMG, AVIC expanded its GA technology portfolio by acquiring Danbury Aerospace, United Turbine & UT Aeroparts, and Southern Avionics and Communications.⁶²³ According to a company press release, these acquisitions were driven by AVIC’s “special place

⁶¹⁷ AVIC International Holding (HK) Limited notification to the Hong Kong Stock Exchange, *Potential Continuing Connected Transactions* (Oct. 24, 2017).

⁶¹⁸ AVIC International Holding (HK) Limited notification to the Hong Kong stock exchange, *Very Substantial Acquisition and Connected Transaction and Application for Whitewash Waiver and Appointment of Independent Financial Adviser and Clawback Offer by AVIC International (HK) Group Limited* 15 (Sept. 19, 2017).

⁶¹⁹ *The Heart of China’s Unmanned Aerial Vehicles Will Be Domestic-Made: Precision Shot to Acquire the Top-Tier Manufacturers in the United States and Germany* [Chinese], PHOENIX MILITARY NEWS, Dec. 6, 2016, available at http://news.ifeng.com/a/20161206/50370941_0.shtml.

⁶²⁰ *The Heart of China’s Unmanned Aerial Vehicles Will Be Domestic-Made: Precision Shot to Acquire the Top-Tier Manufacturers in the United States and Germany* [Chinese], PHOENIX MILITARY NEWS, Dec. 6, 2016, available at http://news.ifeng.com/a/20161206/50370941_0.shtml.

⁶²¹ *The Heart of China’s Unmanned Aerial Vehicles Will Be Domestic-Made: Precision Shot to Acquire the Top-Tier Manufacturers in the United States and Germany* [Chinese], PHOENIX MILITARY NEWS, Dec. 6, 2016, available at http://news.ifeng.com/a/20161206/50370941_0.shtml.

⁶²² Press Release, Continental Motors, AVIC International Announces the Formation of Continental Motors Group and Expansion into China (Apr. 10, 2014), available at <http://www.continentalmotors.aero/xPublications/News%20Releases/AVIC%20International%20announces%20the%20Founding%20of%20the%20Continental%20Motors%20Group>.

⁶²³ Press Release, Continental Motors Group Announces Completed Acquisition of Southern Avionics and Communications (Nov. 24, 2014); Press Release, Continental Motors, Continental Motors Services Acquires United Turbine and UT Aeroparts Corporation (Feb. 2, 2015); Press Release, Continental Motors, Continental Motors to Purchase Assets from Danbury Aerospace (May 4, 2015).

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and obligation to bring general aviation products to China.”⁶²⁴

Consolidation of AVIC-acquired GA assets in the United States has provided the company a fully integrated GA aircraft engine marketing, sales, MRO, manufacturing, and R&D business.⁶²⁵ As AVIC notes, “CMG is the only global player capable of designing, manufacturing and maintaining both gasoline and diesel piston engines.”⁶²⁶

b) Integrated Circuits

Government Policies

As the SIA has observed, “[s]emiconductors are the building blocks upon which U.S. technological leadership rests.”⁶²⁷ Semiconductors play a key role in many sectors of the economy that are at the forefront of U.S. competitiveness.⁶²⁸ Likewise, a strong domestic IC sector is important to U.S. national security.⁶²⁹

An erosion of U.S. technological leadership in this sector could have significant and potentially irreversible effects. As Robert Atkinson of the Information Technology and Innovation Foundation (ITIF) has observed:

[I]f America’s technology base was substantially lost, no adjustment of currency decline could bring it back because national strength in technology industries is based less on cost and more on a complex array of competencies at the firm- and ecosystem-level. *For example, a firm could not simply buy some semiconductor equipment and start cranking out chips.* To do that would require not just machines but deep and complex tacit knowledge embedded in the firm in workers from the shop floor to research and development (R&D) scientists coupled with an innovation ecosystem (universities training the right talent, a network of suppliers of materials, etc.). *Once those capabilities are lost, they are essentially gone, and are very difficult to resurrect.*⁶³⁰

⁶²⁴ Press Release, Continental Motors, AVIC International Announces the Formation of Continental Motors Group and Expansion into China (Apr. 10, 2014), *available at* <http://www.continentalmotors.aero/xPublications/News%20Releases/AVIC%20International%20announces%20the%20Founding%20of%20the%20Continental%20Motors%20Group>.

⁶²⁵ Press Release, Continental Motors, AVIC International Announces the Formation of Continental Motors Group and Expansion into China (Apr. 10, 2014), *available at* <http://www.continentalmotors.aero/xPublications/News%20Releases/AVIC%20International%20announces%20the%20Founding%20of%20the%20Continental%20Motors%20Group>.

⁶²⁶ Press Release, Continental Motors, AVIC International Announces the Formation of Continental Motors Group and Expansion into China (Apr. 10, 2014), *available at* <http://www.continentalmotors.aero/xPublications/News%20Releases/AVIC%20International%20announces%20the%20Founding%20of%20the%20Continental%20Motors%20Group>.

⁶²⁷ SIA, *Submission, Section 301 Hearing 2* (Oct. 5, 2017).

⁶²⁸ SIA, *Submission, Section 301 Hearing 2* (Oct. 5, 2017).

⁶²⁹ *China’s Technological Rise: Challenges to U.S. Innovation and Security: Hearing Before the House Committee on Foreign Affairs, Subcommittee on Asia and the Pacific*, 115th Cong. 11 (2017) (Statement of Robert D. Atkinson) (emphasis added).

⁶³⁰ *China’s Technological Rise: Challenges to U.S. Innovation and Security: Hearing Before the House Committee on Foreign Affairs, Subcommittee on Asia and the Pacific*, 115th Cong. 4 (2017) (Statement of Robert D. Atkinson).

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In recent decades, the Chinese government has repeatedly underscored the importance of developing an indigenous IC industry and challenging U.S. leadership in this sector. Since 2014, the government has taken concrete steps to realize this objective, mobilizing multiple state actors and committing vast sums of money to support the acquisition of foreign IC technology. Chinese companies have been close partners in this effort, and have embarked on what one participant in the investigation referred to as a “buying spree”⁶³¹ – acquiring a large number of foreign IC companies and assets, primarily in the United States.

In its five-year plans for the Chinese economy, the government has consistently flagged the IC industry as a national priority:

- In 1991 China’s *8th Five-year National Economic and Social Development Plan Outline (8th Five-year Plan)* called the development of the domestic integrated circuit industry a “main task”⁶³² of the state.⁶³³
- In 1996, China’s *9th Five-year National Economic and Social Development Plan Outline and 2010 Long-Term Goals (9th Five-year Plan)* called for the development of new generation integrated circuits, and for China to catch up to global technology levels.⁶³⁴
- In 2001, the *10th Five-year National Economic and Social Development Plan Outline (10th Five-year Plan)* called for the focused development of high-tech industries with localized breakthroughs and development, as well as using the IDAR approach to “vigorously develop the IC and software industry.”⁶³⁵
- In 2006, China’s *11th Five-year National Economic and Social Development Plan Outline (10th Five-year Plan)* called for the “vigorous” development of integrated circuits and other industries at the core of the “digitization trend.”⁶³⁶
- In 2011, China’s *12th Five-year National Economic and Social Development Plan Outline (12th Five-year Plan)* once again called for rapid development by cultivating a group of “backbone enterprises”⁶³⁷ and demonstration bases in the strategic emerging industries.⁶³⁸

⁶³¹ ITIF, *Submission, Section 301 Hearing 9* (Oct. 25, 2017).

⁶³² English translation for Chinese term *zhuyao renwu*.

⁶³³ *8th Five-year National Economic and Social Development Plan Outline* § 1(3) (adopted by the NPC on Apr. 9, 1991).

⁶³⁴ *9th Five-year National Economic and Social Development Plan Outline and 2010 Long-Term Goals* § 2(4) (adopted by the NPC on Mar. 17, 1996).

⁶³⁵ *10th Five-year National Economic and Social Development Plan Outline* Ch. 6 § 3 (adopted by the NPC on Mar. 15, 2001).

⁶³⁶ *11th Five-year National Economic and Social Development Plan Outline* Ch. 10 § 1 (adopted by the NPC on Mar. 14, 2006).

⁶³⁷ English translation for Chinese term *gugan qiye*.

⁶³⁸ *12th Five-year National Economic and Social Development Plan Outline* Ch. 10 § 2 (adopted by the NPC on Mar. 14, 2011).

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- In 2016, China's *13th Five-year National Economic and Social Development Plan Outline (13th Five-year Plan)* called for the active promotion of advanced semiconductor technology.⁶³⁹

A series of other government policies and planning documents echo the consistent message of the Five-year Plans. For instance, policies addressing the broad development of science and technology call for the support of a domestic IC industry.⁶⁴⁰ In addition, the government released several policies and plans that are specific to the IC industry, and call for its promotion and development.⁶⁴¹

MIIT's issuance of the *Guidelines for the Development and Promotion of the Integrated Circuit Industry (IC Guidelines)* in 2014 marked a turning point in the evolution of Chinese policy in the IC sector. This measure called for establishing a National IC Industry Development Leading Small Group, with responsibility for the overall design and coordination of China's IC industry development.⁶⁴²

The *IC Guidelines* also called for substantial funding to support the growth of China's IC industry. The *IC Guidelines* directed the creation of a National IC Fund to mobilize capital from large enterprises, financial organizations, and society to invest in the development of China's IC industry and promote industrial upgrading.⁶⁴³ The *IC Guidelines* also called for policy banks (in particular, China Exim and CDB) and commercial banks to provide financial support to the IC industry.⁶⁴⁴

⁶³⁹ *13th Five-year National Economic and Social Development Plan Outline* Ch. 23 § 1 (adopted by the NPC on Mar. 16, 2016).

⁶⁴⁰ These include the *Notice on Issuing the National Medium- and Long-Term Science and Technology Development Plan Outline (2006-2020)* (State Council, Guo Fa [2005] No. 44, issued Dec. 26, 2005); see also *Several Supporting Policies for Implementing the "National Medium- and Long-Term Science and Technology Development Plan Outline (2006-2020)"* (State Council, Guo Fa [2006] No. 6, issued Feb. 7, 2006); *11th Five-year Science and Technology Development Plan* (MOST, issued Oct. 27, 2006); *Electronic Information Industry Restructuring and Revitalization Plan* (State Council, published Apr. 15, 2009); *Decision on Accelerating and Fostering the Development of Strategic Emerging Industries* (State Council, Guo Fa [2010] No. 32, issued Oct. 18, 2010); *Notice on the National 12th Five-year Science and Technology Development Plan* (MOST, issued July 4, 2011); *Notice on Corporate Income Tax Policies to Further Encourage the Development of the Software and Integrated Circuit Industries* (State Council, Guo Fa [2011] No. 4, issued Jan. 28, 2011); *Notice on Issuing the 12th Five-year National Strategic Emerging Industries Development Plan* (State Council, Guo Fa [2012] No. 28, issued July 9, 2012); *Made in China 2025 Notice*; *Made in China 2025 Roadmap*; *Ministry of Industry and Information Technology Notice on Issuing the Industry Technology Innovation Capacity Development Plan (2016-2020)* (MIIT, Gong Xin Bu Gui [2016] No. 344, issued Oct. 31, 2016); *Notice on Issuing the National 13th Five-year Science and Technology Innovation Plan* (State Council, Guo Fa [2016] No. 43, issued July 28, 2016); *Notice on the 13th Five-year Strategic Emerging Industries Development Plan* (State Council, Guo Fa [2016] No. 67, issued Nov. 29, 2016).

⁶⁴¹ *12th Five-year Development Plan for the Integrated Circuit Industry [hereinafter "IC 12th Five-year Plan"]* (MIIT, issued Feb. 24, 2012); *Notice on Issuing Several Policies to Further Encourage the Development of the Software and Integrated Circuit Industries* (State Council, Guo Fa [2011] No. 4, issued Jan. 28, 2011); *Notice on Issuing Several Policies to Encourage the Development of the Software and Integrated Circuit Industries* (State Council, Guo Fa [2000] No. 18, issued June 24, 2000).

⁶⁴² *IC Guidelines* § 4(1).

⁶⁴³ *IC Guidelines* § 4(2).

⁶⁴⁴ *IC Guidelines* § 4(3).

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Taken together, the series of policies and plans issued by the Chinese governments set out a comprehensive strategy for developing indigenous IC capacity and reducing imports. In these documents, the Chinese government disapproves of the fact that China relies on imports of IC products, and underscores the importance of achieving a self-sufficient IC industry that is capable of meeting domestic demand and contributing to exports.⁶⁴⁵ Indeed, some plans set specific targets for domestic market share to be achieved by Chinese companies,⁶⁴⁶ and call for a technologically advanced and “secure and reliable” IC industry by 2020.⁶⁴⁷

China’s strategy calls for creating a closed-loop semiconductor manufacturing ecosystem with self-sufficiency at every stage of the manufacturing process – from IC design and manufacturing to packaging and testing, and the production of related materials and equipment.⁶⁴⁸

A central pillar of this strategy is achieving technology transfer through foreign acquisitions. For example, the *Notice on Issuing the Industrial Technology Innovation Capability Development Plan (2016-2020)* expressly encourages foreign acquisitions to increase the international competitiveness of China’s domestic industry through “*technology acquisition*”⁶⁴⁹ and “*technology transfer*”⁶⁵⁰.⁶⁵¹ The *National 13th Five-year Science and Technology Innovation Plan* calls for the “capture⁶⁵² of ‘key core technologies’ (electronic components, high-end telecom chips, foundational software), integrated circuit equipment, broadband mobile communications [...]”⁶⁵³ State plans also underscore the need to apply the IDAR method to cultivate the domestic IC industry.⁶⁵⁴

⁶⁴⁵ See e.g., *Notice on Issuing Several Policies to Encourage the Development of the Software and Integrated Circuit Industries* (State Council, Guo Fa [2000] No. 18, issued June 30, 2000), which provides at art. 2: “Through 5 to 10 years of efforts, domestically produced software products are to be able to satisfy a large portion of domestic market demand, and achieve a large volume of exports; domestically produced integrated circuit products are to be able to satisfy a large portion of domestic market demand, and achieve a certain volume of exports. At the same time, further shrink the gap with advanced countries in developing and manufacturing technology.” See also § 1.1.1 of the *Made in China 2025 Roadmap*, which notes that in 2015, China’s domestic IC production was \$48.3 billion, which satisfied 41 percent of China’s domestic demand. China’s domestic IC production is forecast to reach \$85.1 billion by 2020, meeting 49 percent of China’s domestic demand, and \$183.7 billion by 2030, meeting 75 percent of China’s domestic demand. Therefore, meeting domestic demand, increasing China’s rate of IC self-sufficiency, and at the same time satisfying China’s needs for national security is the greatest requirement and motivation of developing China’s IC industry.

⁶⁴⁶ See e.g., *Notice on the 12th Five-year Strategic Emerging Industries Development Plan* (State Council, Guo Fa [2012] No. 28, issued July 9, 2012), which provides at § 4(1): “By 2015, raise IC industry value-added domestic market share from five percent to 15 percent.”

⁶⁴⁷ *IC Guidelines* § 2(3).

⁶⁴⁸ *IC Guidelines* § 2(3); *Notice on the 12th Five-year Strategic Emerging Industries Development Plan*, Box 5.

⁶⁴⁹ English translation of the Chinese term *jishu bingou*.

⁶⁵⁰ English translation of the Chinese term *jishu zhuan yi*.

⁶⁵¹ *Ministry of Industry and Information Technology Notice on Issuing the Industry Technology Innovation Capacity Development Plan (2016-2020)* (MIIT, Gong Xin Bu Gui [2016] No. 344, issued Oct. 31, 2016) (emphasis added).

⁶⁵² English translation of the Chinese term *gongke*.

⁶⁵³ *Notice on Issuing the National 13th Five-year Science and Technology Innovation Plan* Ch. 4 § 1 (State Council, Guo Fa [2016] No. 43, issued Aug. 8, 2016).

⁶⁵⁴ *IC 12th Five-year Plan* § 3(1), “Guiding Thoughts, Basic Principles, and Development Targets”. (“Strengthen introduce, digest, absorb, and re-innovate, and tread a path of method innovation and internationalizing development.”).

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State funding plays a key role in this acquisition strategy. State policies call on the departments under the State Council and all levels of local governments to develop financing measures, including policy funds, loan guarantees, and new financial instruments, to support this effort.⁶⁵⁵

Ultimately, the objective of these policies is to create competitive Chinese enterprises in the IC sector. The policies prioritize the cultivation of strong backbone enterprises to upgrade domestic competitiveness and perfect the industrial ecosystem.⁶⁵⁶ The formation of a favorable industrial ecosystem environment is intended to include clusters of upstream and downstream enterprises achieving breakthroughs and upgrading along the value chain.⁶⁵⁷ These enterprises – supported by a network of government bodies, investment funds, research institutions, legal organizations, and other intermediary organizations – should play a key role in acquiring foreign technology and introducing it to the domestic industrial ecosystem.⁶⁵⁸ The *13th Five-year Science and Technology Innovation Plan* released in 2016 calls specifically for supporting Beijing and Shanghai in building globally influential science and technology innovation centers, including internationally competitive high-tech industrial clusters.⁶⁵⁹

Chinese Investments in the U.S. Integrated Circuit Sector

In recent years, these policy directives have prompted a flood of foreign acquisitions. Since 2014, when the government issued the Guidelines, Chinese companies and investors – often backed by state capital – have undertaken a series of acquisitions to achieve technology breakthrough, shrink the technology gap between China and advanced countries, cultivate domestic innovation clusters, and reduce China’s reliance on IC imports. Government leadership in these operations is clear. In many cases, the Chinese acquirers openly admit the role played by the state in guiding and facilitating these acquisitions.

Below, several Chinese acquisitions of U.S. companies and assets that illustrate this development are discussed in detail.

Beijing E-Town Chipone/iML

On June 1, 2016, California-based Exar Corporation agreed to sell its subsidiary, Integrated Memory Logic Limited (iML), to Beijing E-Town Chipone Technology Co., Ltd. (Beijing E-Town Chipone) for \$136 million. iML is a leading provider of power management and color calibration solutions for the flat-panel display and LED lighting markets.⁶⁶⁰

⁶⁵⁵ *Notice on Issuing Several Policies on Further Encouraging the Development of the Software and Integrated Circuit Industries* § 4(2) (State Council, Guo Fa [2011] No. 4, issued Jan. 28, 2011); *Electronic Information Industry Restructuring and Revitalization Plan* § 2(12) (State Council, issued Apr. 15, 2009).

⁶⁵⁶ *IC 12th Five-year Plan* § 4(1).

⁶⁵⁷ *IC Guidelines* § 4(6).

⁶⁵⁸ *Notice on the 13th Five-year National Strategic Emerging Industries Development Plan* § 9(3) (State Council, Guo Fa [2016] No. 67, issued Nov. 29, 2016).

⁶⁵⁹ *Notice on Issuing the National 13th Five-year Science and Technology Innovation Plan* Ch. 11, § 3 (State Council, Guo Fa [2016] No. 43, issued Aug. 8, 2016).

⁶⁶⁰ Exar Corporation 8-K filed with the Securities and Exchange Commission on May 31, 2015. Commission File No. 0-14225.

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Beijing E-Town Chipone was formed by Beijing E-Town and Chipone Technology Co., Ltd. (Chipone). (Beijing E-Town is both a separate entity and a partner with Chipone in forming Beijing E-Town Chipone, the vehicle used to acquire iML.) Beijing E-Town is an SOE, and provided the largest source of capital for the acquisition of iML.⁶⁶¹ As discussed in Section IV.B.5, above, Beijing E-Town was established and approved by the Beijing Municipal Government in February 2009, and is wholly owned and controlled by the Beijing Economic-Technological Development Zone State Asset Management Office.⁶⁶²

Beijing E-Town's investment strategy reflects Chinese government policy and strategy. According to a 2015 presentation by General Manager Wang Xiaobo, Beijing E-Town seeks to integrate government leadership and market operations in building a system of funds that includes the National IC Fund, provincial/municipal-level funds, and smaller VC funds.⁶⁶³ This system of funds seeks to accelerate industrial clustering, incubate innovation, and cultivate an industrial ecosystem.⁶⁶⁴

A key aspect of Beijing E-Town's investment philosophy is the objective of clustering technology companies in the Beijing Economic-Technological Development Zone.⁶⁶⁵ According to an article on the Beijing Economic-Technological Development Zone website, sources familiar with the acquisition say that after Chipone has integrated iML, Chipone plans to move iML operations to its headquarters in the Beijing Economic-Technological Development Zone.⁶⁶⁶

Beijing E-Town's goal is to partner with domestic industry leaders to promote international acquisitions to acquire a number of key technologies in the IC industry – including mobile telecom base chips, RF chips, memory chips, IGBT / power electronics, LCD driver chips, CPU

⁶⁶¹ To finance the acquisition entity, Beijing E-Town International Emerging Industries Investment Center, which is 92.83 percent owned by Beijing E-Town, contributed CNY 500 million (\$74 million) (45.5 percent), Chipone contributed CNY 400 million (\$59 million) (36.4 percent), and real-estate company named Beijing Yongchang Huanyu contributed CNY 200 million (\$30 million) (18.2 percent), for a total of CNY 1.1 billion (\$163 million). See *China's National Enterprise Credit Information Publicity System* [Chinese], available at <http://www.gsxt.gov.cn>; *Qi Xin Bao database* [Chinese], available at <http://www.qixin.com>; *CCXR 2017 Credit Report on Beijing E-Town International Investment and Development Co., Ltd.* 22 [Chinese] (Credit Committee [2017] No. G229-1).

⁶⁶² *CCXR 2017 Credit Report on Beijing E-Town International Investment and Development Co., Ltd.* [Chinese] (Credit Committee [2017] No. G229-1).

⁶⁶³ Wang Xiaobo, General Manager Beijing E-Town, Presentation at TIF China 2015, *Establishing an Investment Financing Platform; Promoting Development of the Integrated Circuit Industry* [Chinese] (Mar. 2015), available at http://www.semi.org/en/sites/semi.org/files/data15/docs/Wangxiaobo_TIF.pdf.

⁶⁶⁴ Wang Xiaobo, General Manager Beijing E-Town, Presentation at TIF China 2015, *Establishing an Investment Financing Platform; Promoting Development of the Integrated Circuit Industry* [Chinese] (Mar. 2015), available at http://www.semi.org/en/sites/semi.org/files/data15/docs/Wangxiaobo_TIF.pdf.

⁶⁶⁵ Wang Xiaobo, General Manager Beijing E-Town, Presentation at TIF China 2015, *Establishing an Investment Financing Platform; Promoting Development of the Integrated Circuit Industry* [Chinese] (Mar. 2015), available at http://www.semi.org/en/sites/semi.org/files/data15/docs/Wangxiaobo_TIF.pdf.

⁶⁶⁶ *Development Area's IC Industry Pours a Strong Dose of 'Chips'* [Chinese], BDA Nov. 11, 2016, available at <http://www.bda.gov.cn/cms/jryz/136640.htm>.

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chips, MEMS sensor chips. This strategy is intended to effect technology transfer, and in so doing, achieve the government's stated objective of reducing China's reliance on IC imports.⁶⁶⁷

Consistent with this strategy, Beijing E-Town's partner in the iML acquisition, Chipone, has publicly stated that the iML acquisition was undertaken to further Chinese national policy goals to limit IC imports. According to Chipone's press release for the iML acquisition, domestic Chinese flat-panel display chip producers have an obligation to substitute domestic production for imports, and the acquisition of iML would reduce IC imports in the flat-panel display industry.⁶⁶⁸

The iML acquisition hinged on Beijing E-Town's financial support, which took three forms: (1) a loan guarantee of CNY 200 million (\$30 million) to Chipone;⁶⁶⁹ (2) the provision of land and capital to one of Chipone's largest customers – the liquid crystal display manufacturer BOE,⁶⁷⁰ which is also located in the Beijing Economic-Technological Development Zone cluster;⁶⁷¹ and (3) a financial commitment of CNY 10 billion (\$1.5 billion) to the National IC Fund by Beijing E-Town on behalf of Beijing municipality,⁶⁷² which played an indirect role in the acquisition of iML.⁶⁷³

Beijing E-Town/Mattson

⁶⁶⁷ Wang Xiaobo, General Manager Beijing E-Town, Presentation at TIF China 2015, *Establishing an Investment Financing Platform; Promoting Development of the Integrated Circuit Industry* [Chinese] (Mar. 2015), available at http://www.semi.org/en/sites/semi.org/files/data15/docs/Wangxiaobo_TIF.pdf.

⁶⁶⁸ Press Release, Chipone, Chipone Announces Acquisition of iML, 1+1>2 Strengthen Future Development New Force [Chinese] (Nov. 10, 2016), available at http://www.chiponeic.com/content/details11_299.html.

⁶⁶⁹ *CCXR 2017 Credit Report on Beijing E-Town International Investment and Development Co., Ltd.* 19 [Chinese] (Credit Committee [2017] No. G229-1).

⁶⁷⁰ *Chipone's LCD Driver Chip Mass Produced for BOE's 32-inch TV Screen* [Chinese], CHIPONE, Oct. 29, 2015, available at http://www.chiponeic.com/content/details11_267.html. Wang Xiaobo, General Manager Beijing E-Town, Presentation at TIF China 2015, *Establishing an Investment Financing Platform; Promoting Development of the Integrated Circuit Industry* [Chinese] (Mar. 2015), available at http://www.semi.org/en/sites/semi.org/files/data15/docs/Wangxiaobo_TIF.pdf.

⁶⁷¹ Wang Xiaobo, General Manager Beijing E-Town, Presentation at TIF China 2015, *Establishing an Investment Financing Platform; Promoting Development of the Integrated Circuit Industry* [Chinese] (Mar. 2015), available at http://www.semi.org/en/sites/semi.org/files/data15/docs/Wangxiaobo_TIF.pdf.

⁶⁷² *CCXR 2017 Credit Report on Beijing E-Town International Investment and Development Co., Ltd.* 12 [Chinese] (Credit Committee [2017] No. G229-1).

⁶⁷³ SMIC received an investment of approximately \$400 million from the National IC Fund in February 2015. Press Release, SMIC Receives Investment from China Integrated Circuit Industry Investment Fund (Feb. 12, 2015), http://www.smics.com/eng/press/press_releases_details.php?id=264990. SMIC received another investment of approximately \$750 million from the Shanghai IC Fund in January 2016. *SMIC to Benefit from \$3 Billion Investment*, EE TIMES, Jan. 26, 2016. Beijing E-town also provided CNY 700 million (\$111 million) to finance the B2 300nm fab, which is located in the Beijing Economic-Technological Development Area (Beijing E-Town Investment Strategy - March 2015 [Chinese], slide 13). SMIC is both an investor in and a major customer of Chipone. In March 2014, SMIC established China Fortune-Tech Capital with an initial size of CNY 500 million (\$76 million), of which 75 percent came from SMIC and 25 percent came from Finehome Holding Group. (*SMIC Establishes Fund to Invest in Integrated Circuits* [Chinese], SINA FINANCE, Mar. 3, 2014, <http://finance.sina.com.cn/stock/hkstock/ggscyd/20140303/094118384624.shtml>). Chipone lists investment from China Fortune-Tech Capital in December 2015 as a major milestone. *Chipone IC Timeline*, CHIPONE, <http://www.chiponeic.com/auto/f-course.html>. Chipone signed the agreement to acquire iML six months after receiving this investment and completed the acquisition 11 months after.

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In December 2015, a wholly-owned subsidiary of Beijing E-Town acquired Mattson Technology, Inc. (Mattson), a global semiconductor wafer processing equipment provider.⁶⁷⁴ Under the terms of the sale, Beijing E-Town acquired all of the outstanding shares of Mattson for \$3.80 per share in cash. The price “represents a 55 percent premium to the 30-trading day average closing price for the period ending December 1, 2015, a 23 percent premium to Mattson’s closing stock price on December 1, 2015, and values Mattson’s equity at approximately \$300 million on a fully diluted basis.”⁶⁷⁵

According to Beijing E-Town’s 2016 bond prospectus, through this acquisition Beijing E-Town acquired the “millisecond anneal, rapid thermal processing, laser etching, and other key technologies in the semiconductor chip processing area.”⁶⁷⁶ Beijing E-Town explained that, along with other IC acquisitions, the Mattson acquisition implemented the national strategy of “cultivating strategic emerging industries” and “strengthening smart manufacturing capability.”⁶⁷⁷

Uphill Investment Co./Integrated Silicon Solutions (ISSI)

In June 2015, the shareholders of Integrated Silicon Solutions (ISSI) approved the company’s acquisition by Uphill Investment Co. (Uphill), a Chinese investment consortium led by SummitView Capital, eTown MemTek, Hua Capital, and Huaqing Jiye Investment Management Co. Ltd.

After several rounds of bidding against U.S.-based Cypress Semiconductor Corp. (Cypress), Uphill’s winning bid and final purchase price was \$23 per share, yielding a purchase price of approximately \$765 million⁶⁷⁸ – well in excess of the initial price proposed by ISSI (\$18.19 per share).⁶⁷⁹ At the time, industry analysts observed that “ISSI was a particularly desirable acquisition for Cypress because of its patents.”⁶⁸⁰ Nonetheless, Cypress was outbid by its Chinese competitor.

Uphill’s acquisition of ISSI was made possible by state support and financing. The Uphill consortium was comprised of a network of investment funds working to achieve Chinese state objectives:

⁶⁷⁴ Beijing E-Town Dragon Semiconductor Industry Investment Center (Limited Partnership) (E-Town Dragon) is a wholly owned subsidiary of Beijing E-Town International Investment & Development Co., Ltd. (Beijing E-Town). See CCXR, 2017 CREDIT REPORT ON BEIJING E-TOWN 22 (2017).

⁶⁷⁵ Press Release, Mattson Technology, Mattson Technology, Inc. Enters into a Definitive Agreement to be Acquired by the Beijing E-Town Dragon Semiconductor Industry Investment Center for \$3.80 per Share in Cash, (Dec. 1, 2015).

⁶⁷⁶ BEIJING E-TOWN INTERNATIONAL INVESTMENT AND DEVELOPMENT CO., LTD. 2016 PUBLIC BOND ISSUANCE COLLECTION MANUAL ABSTRACT 1-2-58 [Chinese] (July 14, 2016).

⁶⁷⁷ BEIJING E-TOWN INTERNATIONAL INVESTMENT AND DEVELOPMENT CO., LTD. 2016 PUBLIC BOND ISSUANCE COLLECTION MANUAL ABSTRACT 1-2-50 [Chinese] (July 14, 2016).

⁶⁷⁸ BEIJING E-TOWN INTERNATIONAL INVESTMENT AND DEVELOPMENT CO., LTD. 2016 PUBLIC BOND ISSUANCE COLLECTION MANUAL ABSTRACT 1-2-58 [Chinese] (July 14, 2016).

⁶⁷⁹ Integrated Silicon Solutions, Inc. Schedule 14A filed with the SEC: “Uphill Investment Co. Merger Proposal, Special Meeting of Stockholders, June 19, 2015” [Chinese] (slides 4, 10).

⁶⁸⁰ Gary Hilson, *ISSI Acquired: An Analyst’s Thoughts*, EE TIMES, July 8, 2015.

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- SummitView Capital: This entity manages the Shanghai Government’s SummitView IC and IT Industry Fund, which was jointly established with the Shanghai government-owned Venture Capital Guiding Fund of Shanghai in November 2014 in response to the State Council’s *IC Guidelines*.⁶⁸¹ According to the Shanghai Government’s *Provisional Measures on the Administration of the Shanghai Venture Capital Guiding Fund*, the purpose of the Venture Capital Guiding Fund of Shanghai is to “vigorously advance indigenous innovation,” and “accelerate the cultivation and development of strategic emerging industries.”⁶⁸² The SummitView Capital website states that “using high-level national strategy and industrial strategy as the starting point, we establish a whole-of-industry investment fund and advance the construction and optimization of an industry ecosystem.”⁶⁸³
- Hua Capital: This fund was established by Tsinghua Holdings and China Fortune-Tech Capital,⁶⁸⁴ a fund under the Semiconductor Manufacturing International Corporation (SMIC). Hua Capital manages the Beijing government’s Integrated Circuit Design and Test Fund.⁶⁸⁵ According to Hua Capital’s website, the ISSI acquisition “has important meaning for filling a void in China’s memory storage industry, advancing automotive semiconductors, and maintaining the security of domestically produced smart cards.”⁶⁸⁶
- Beijing E-Town: The investment funds in the consortium are all connected through investment from Beijing E-Town, which is part-owner of one of the consortium members (eTown MemTek). Beijing E-Town invested CNY 300 million (\$49 million) in SummitView Pujiang on December 15, 2014, for a 20.03 percent stake in the CNY 1.5 billion (\$243 million) fund.⁶⁸⁷ Likewise, Beijing E-Town invested CNY 200 million (\$32 million) in the Hua Capital-managed Beijing Integrated Circuit Design and Test Fund on September 25, 2014, for an 8.96 percent stake in the CNY 2.232 billion (\$362 million) fund.⁶⁸⁸ Beijing E-Town gave Huaqing Jiye – the only “private” company in the consortium – a CNY 247 million (\$39 million) 2-year loan on November 20, 2015, in relation to the acquisition of ISSI.⁶⁸⁹ The acquisition was also supported by debt financing from Chinese state-owned commercial banks.

⁶⁸¹ *Shanghai Establishes IC Industry Development Leading Small Group* [Chinese], SUMMITVIEW Aug. 18, 2015, <http://www.summitviewcapital.com/plus/view.php?aid=27>.

⁶⁸² *Provisional Measures on the Administration of the Shanghai Venture Capital Guiding Fund*, art.1 (Shanghai Municipal Government, Hu Fu Fa [2010] No. 37, issued Oct. 26, 2010).

⁶⁸³ *Founding Partners* [Chinese], SUMMITVIEW, <http://www.summitviewcapital.com/plus/list.php?tid=16>, (last visited Nov. 3, 2017).

⁶⁸⁴ *Company Profile* [Chinese], HUA CAPITAL, <http://www.hua-capital.com/about.aspx?id=609>, (last visited Nov. 3, 2017).

⁶⁸⁵ Integrated Silicon Solutions, Inc. Schedule 14A filed with the SEC: Uphill Investment Co. Merger Proposal, Special Meeting of Stockholders [Chinese], June 19, 2015, (slide 10).

⁶⁸⁶ *News* [Chinese], HUA CAPITAL, http://www.hua-capital.com/ne_ws.aspx, (last visited Nov. 3, 2017).

⁶⁸⁷ BEIJING E-TOWN INTERNATIONAL INVESTMENT AND DEVELOPMENT CO., LTD. 2016 PUBLIC BOND ISSUANCE COLLECTION MANUAL ABSTRACT 1-2-64 [Chinese] (July 14, 2016).

⁶⁸⁸ BEIJING E-TOWN INTERNATIONAL INVESTMENT AND DEVELOPMENT CO., LTD. 2016 PUBLIC BOND ISSUANCE COLLECTION MANUAL ABSTRACT 1-2-65 [Chinese] (July 14, 2016).

⁶⁸⁹ BEIJING E-TOWN INTERNATIONAL INVESTMENT AND DEVELOPMENT CO., LTD. 2016 PUBLIC BOND ISSUANCE COLLECTION MANUAL ABSTRACT 1-2-101 [Chinese] (July 14, 2016).

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Industrial and Commercial Bank of China, in conjunction with the Bank of Beijing and Beijing Rural Commercial Bank, reportedly provided the consortium with a \$480 million loan, with a five-year term.⁶⁹⁰

Seagull/Omnivision

On January 28, 2016, Seagull International Ltd. and Seagull Acquisition Corp. (collectively, Seagull) announced the completion of the acquisition of OmniVision Technologies, Inc. (OmniVision) for approximately \$1.9 billion.⁶⁹¹ OmniVision is a leading developer of advanced digital imaging solutions. The company's CameraChip™ and CameraCubeChip™ products are highly integrated, single-chip complementary metal-oxide semiconductor (CMOS) image sensors for consumer and commercial applications.⁶⁹²

Seagull is a consortium composed of Hua Capital, CITIC Capital Holdings Limited (CITIC Capital), and Goldstone Investment Co., Ltd. (Goldstone). These investment funds are backed by state capital and claim to pursue state objectives. CITIC Capital is partly owned by CITIC Group,⁶⁹³ which describes itself as “a large state-owned multinational conglomerate.”⁶⁹⁴ CITIC Capital's investment capital comes primarily from China's sovereign wealth funds and pension funds.⁶⁹⁵ Goldstone, which is a wholly-owned subsidiary of CITIC Securities,⁶⁹⁶ stated in regulatory filings that the OmniVision investment fulfills Goldstone's objective of providing both a financial return and advancing the development of China's national integrated circuit

⁶⁹⁰ *Banks Provide \$480 Million Loan, Assist Chinese Financial Consortium Acquire ISSI* [Chinese], REUTERS, Dec. 15, 2015.

⁶⁹¹ Omnivision & Hua Capital Management, Citic Capital and Goldstone Investment Announce the Completion of the Acquisition of Omnivision by Hua Capital Management, Citic Capital and Goldstone Investment, OmniVision Exhibit 99.1. filed with the SEC, Jan. 28, 2016. *See also Beijing Ingenu Swallows U.S.'s OmniVision* [Chinese], CAIXIN, Mar. 9, 2017, <http://opinion.caixin.com/2017-03-09/101064177.html> (last visited Nov. 3, 2017).

⁶⁹² Omnivision & Hua Capital Management, Citic Capital and Goldstone Investment Announce the Completion of the Acquisition of Omnivision by Hua Capital Management, Citic Capital and Goldstone Investment, OmniVision Exhibit 99.1. filed with the SEC, Jan. 28, 2016. *See also* OmniVision's camera sensors have been used in Apple's iPhone. *Hua Capital hires Bank of America for OmniVision deal*, SOUTH CHINA MORNING POST, Sept. 19, 2014.

⁶⁹³ CITIC Group owns a 24.06 percent stake in CITIC Capital. CITIC 2015 ANNUAL REPORT 314 (2016).

⁶⁹⁴ *See Brief Introduction*, CITIC GROUP CORPORATION, http://www.group.citic/wps/portal!/ut/p/b1/04_Sj9CPykssy0xPLMnMz0vMAfGjzOI9w8zcLULdQoM9XV1MDRxNXL283H09DE1cjPQLsh0VAc_K3bQ!/?lctn=1&flag=11 (last visited Jan. 9, 2018) (“CITIC Group was established in 1979 by Mr. Rong Yiren with the support of late Chinese leader Deng Xiaoping. Since its inception, CITIC Group has been a pilot for national economic reform and an important window on China's opening to the outside world. It has blazed a new trail of development for China's Reform and Opening-up by raising foreign capital, *introducing advanced technologies*, and adopting advanced international practice in operation and management, thus building up good reputation both home and abroad” (emphasis added)). CITIC Limited (SEHK: 00267) is one of the largest constituents of the Hang Seng Index. As of December 31, 2016, CITIC Limited had total assets of HK\$7,238 billion (\$934 million), total revenue of HK\$381 billion (\$49.1 billion), and total equity attributable to ordinary shareholders of HK\$431 billion (\$55.6 billion).

⁶⁹⁵ *Ingenu Semiconductor Co. Stock Issuance and Cash Payment to Purchase Assets and Raise Accompanying Capital as well as Affiliated Transaction Contingency Plan 27* [Chinese] filed with the Shenzhen Stock Exchange in Nov. 2016.

⁶⁹⁶ OmniVision Exhibit 99.1. Omnivision & Hua Capital Management, Citic Capital and Goldstone Investment Announce The Completion Of The Acquisition Of Omnivision By Hua Capital Management, Citic Capital and Goldstone Investment, SEC, filed Jan. 28, 2016.

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industry.⁶⁹⁷ Hua Capital, which manages the Beijing government's Integrated Circuit Design and Test Fund, "actively looks for outstanding IC design and test companies to execute acquisitions."⁶⁹⁸ Hua Capital states on its website that not only will the OmniVision acquisition provide a return to investors, but it will also effectively advance the development of China's semiconductor industry.⁶⁹⁹

The investment funds in the consortium provided two-thirds of the \$1.9 billion purchase price, with state-owned banks providing the remaining one-third of the purchase price. A consortium of Chinese finance entities contributed \$1.1 billion, while the state-owned Bank of China (Macao Branch) and China Merchants Bank (New York branch) provided loans of \$800 million.⁷⁰⁰ Bank of America and China's sovereign wealth fund, CIC, advised the Chinese consortium on the transaction.⁷⁰¹

c) Information Technology

Government Policies

The IT sector has long been a focus of Chinese development policy. The *11th Five-year Plan*, *12th Five-year Plan*, and *13th Five-year Plan* have all emphasized the development of China's IT sector. MIIT issued the IT sector specific plans including the *Information Industry 11th Five-year Plan*⁷⁰² during the 11th (2006-2010) Five-year Plan period, the *Telecom Industry 12th Five-year Plan*⁷⁰³ during the 12th (2011-2015) Five-year Plan period, and the *Information Industry Development Guidelines (IT Development Guidelines)*⁷⁰⁴ during the 13th (2016-2020) Five-year Plan period. The 2016 *IT Development Guidelines* call for "IT industry backbone enterprises to launch overseas acquisitions through acquiring bills, acquiring funds, acquiring debt etc."⁷⁰⁵

The Chinese government has issued other policies, plans, and decisions that focus on the IT sector. For instance, in 2009, the State Council's *Electronic Information Industry Restructuring and Revitalization Plan* identified information technology as an important driving force of the global economy and pointed to the strategic, foundational, and guiding role of the IT sector.⁷⁰⁶

⁶⁹⁷ Press Release, Ingenic Semiconductor Co. Stock Issuance and Cash Payment to Purchase Assets and Raise Accompanying Capital as well as Affiliated Transaction Contingency Plan 28 [Chinese] (Nov. 2016), filed with the Shenzhen Stock Exchange.

⁶⁹⁸ Press Release, Ingenic Semiconductor Co. Stock Issuance and Cash Payment to Purchase Assets and Raise Accompanying Capital as well as Affiliated Transaction Contingency Plan 26-7 [Chinese] (Nov. 2016), filed with the Shenzhen Stock Exchange.

⁶⁹⁹ News [Chinese], HUA CAPITAL, <http://www.hua-capital.com/news.aspx> (last visited Nov. 3, 2017).

⁷⁰⁰ *Beijing Ingenic Swallows U.S.'s OmniVision* [Chinese], CAIXIN, Mar. 9, 2017, <http://opinion.caixin.com/2017-03-09/101064177.html> (last visited Nov. 3, 2017).

⁷⁰¹ Press Release, OmniVision, OmniVision To Be Acquired By Hua Capital Management, CITIC Capital and Goldstone Investment for \$29.75 Per Share in Cash (Apr. 30, 2015).

⁷⁰² *Information Industry 11th Five-year Plan* (MIIT, published Oct. 30, 2008).

⁷⁰³ *Telecom Industry 12th Five-year Development Plan* (MIIT, published June 27, 2013).

⁷⁰⁴ *Information Industry Development Guidelines* (MIIT and NDRC, Gong Xin Bu Lian Gui [2016] No. 453, issued Jan.16, 2017).

⁷⁰⁵ *Information Industry Development Guidelines*, Section 5(3) (MIIT and NDRC, Gong Xin Bu Lian Gui [2016] No. 453, issued Jan.16, 2017).

⁷⁰⁶ *Electronic Information Industry Restructuring and Revitalization Plan*, preamble (State Council, published Apr. 15, 2009).

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In 2010, the State Council's *SEI Decision* identified new-generation information technology as a strategic emerging industry.⁷⁰⁷ In 2011, the State Council's *Notice on Issuing Several Policies on Further Encouraging the Development of the Software and Integrated Circuit Industries*, called for supporting the "Going Out" strategy of enterprises in establishing foreign marketing networks and R&D centers to promote IC, software, and IT service exports.⁷⁰⁸

These government policies and plans call for a particular focus on developing core foundational industries, such as new displays, high-end software, and high-end servers.⁷⁰⁹ To develop these technologies, they call for government-industry collaboration, the pursuit of indigenous innovation, and "international cooperation."⁷¹⁰ In particular, these plans call for support of domestic IC, software, telecom, and new display enterprises that are implementing the "Going Out" strategy in the form of acquisitions or equity investment in foreign information technology companies to strengthen international competitiveness.⁷¹¹ The plans also call for government-directed investment in the IT industry,⁷¹² and for financial organizations to support outbound investment.⁷¹³

In 2015 Premier Li Keqiang introduced the "*Internet Plus*" *Action Plan*, which calls for the integration of the Internet into every aspect of the Chinese economy and society. In particular, in the section titled "Expanding Foreign Cooperation," the plan calls for competitive Chinese enterprises to "go out" in groups, via foreign acquisitions, in order to increase their global competitiveness in this area.⁷¹⁴ The NDRC, Ministry of Foreign Affairs, MIIT, MOFCOM, and Cyberspace Administration of China are responsible for supporting this effort.⁷¹⁵

⁷⁰⁷ *SEI Decision* § 3(2).

⁷⁰⁸ *Notice on Issuing Several Policies on Further Encouraging the Development of the Software and Integrated Circuit Industries* § 4(21) (State Council, Guo Fa [2011] No. 4, issued Jan. 28, 2011).

⁷⁰⁹ *SEI Decision* § 3(2).

⁷¹⁰ *Electronic Information Industry Restructuring and Revitalization Plan* § 2(2) (State Council, published Apr. 15, 2009).

⁷¹¹ *Electronic Information Industry Restructuring and Revitalization Plan* § 4(5) (State Council, published Apr. 15, 2009).

⁷¹² *Electronic Information Industry Restructuring and Revitalization Plan* § 4(4) (State Council, published Apr. 15, 2009). *Notice on Issuing Several Policies on Further Encouraging the Development of the Software and Integrated Circuit Industries* § 2(12) (State Council, Guo Fa [2011] No. 4, issued Jan. 28, 2011).

⁷¹³ *Electronic Information Industry Restructuring and Revitalization Plan* § 4(5) (State Council, published Apr. 15, 2009).

⁷¹⁴ *Guiding Opinions on the Active Promotion of "Internet +" Action* § 3(4.1) (State Council, Guo Fa [2015] 40, issued July 04, 2015).

⁷¹⁵ *Guiding Opinions on the Active Promotion of "Internet +" Action* § 3(4.1) (State Council, Guo Fa [2015] 40, issued July 04, 2015).

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Likewise, in 2016, the Chinese government released a wave of IT-related plans and policies,⁷¹⁶ several of which encourage foreign acquisitions as a means of obtaining technology.⁷¹⁷ For instance, the *Software and Information Technology Services Development Plan (2016-2020)* encourages the use of the “public-private partnership” model, wherein public and private capital cooperate, as well as the mobilization of financial services in support of foreign acquisitions.⁷¹⁸

Three transactions that reflect and exemplify the impact of these policies are discussed below.

Chinese Investments in the U.S. Information Technology Sector

Ant Financial/EyeVerify

In September 2016, Alibaba’s Ant Financial Services Group (Ant Financial) acquired 100 percent of U.S.-based EyeVerify Inc. (EyeVerify), for an undisclosed amount⁷¹⁹ (Bloomberg reported a transaction value of \$70 million).⁷²⁰ EyeVerify is a creator of biometric verification technology. EyeVerify’s patented authentication solution uses existing cameras on smartphones to image and pattern match the blood vessels in the whites of the eye. The application protects data with a high entropy encryption key which is equivalent to a 50-character complex password.⁷²¹

Government investment and financing was crucial to this transaction. Five months before the acquisition, in April 2016, China’s sovereign wealth fund, CIC, and CCB Trust, a subsidiary of state-owned China Construction Bank, each leading a consortium, participated in a \$4.5 billion series B investment in Ant Financial as new strategic investors.⁷²² CIC and CCB Trust were joined by existing Ant Financial shareholders, including state-owned China Life and other leading Chinese insurance companies, state-owned China Post Group, China Development Bank Capital, a wholly-owned subsidiary of the state-owned policy bank, and Primavera Capital Group.⁷²³ In addition to the state-funding in the Series B described above, China's National

⁷¹⁶ *Big Data Industry Development Plan (2016-2020)* (MIIT, Gong Xin Bu Gui [2016] No. 412, issued Dec. 18, 2017); *Information and Industry Integration Development Plan (2016-2020)* (MIIT, Gong Xin Bu Gui [2016] 333, issued Nov. 3, 2016); *Information and Communications Industry Development Plan (2016-2020)* (MIIT, Gong Xin Bu Gui [2016] No. 424, issued Dec. 18, 2016); *Software and Information Technology Services Development Plan (2016-2020)* (MIIT, Gong Xin Bu Gui [2016] No. 425, issued Dec. 18, 2016); *13th Five-year Transportation and Shipping Informatization Development Plan* (Ministry of Transportation, Jiao Gui Hua Fa [2016] 74, issued Apr. 19, 2016); *13th Five-year Transportation Science and Technology Development Plan* (Ministry of Transportation, Jiao Ke Ji Fa [2016] 51, issued Mar. 16, 2016).

⁷¹⁷ See e.g., *Information and Communications Industry Development Plan (2016-2020)* § 3(2)6 (MIIT, Gong Xin Bu Gui [2016] No. 424, issued Dec. 18, 2016).

⁷¹⁸ See *Software and Information Technology Services Development Plan (2016-2020)* § 5(3) (MIIT, Gong Xin Bu Gui [2016] No. 425, issued Dec. 18, 2016).

⁷¹⁹ Press Release, EyeVerify, Ant Financial Acquires EyeVerify to Boost Trust, Security, and Convenience of Mobile Financial Transaction (Sept. 13, 2016).

⁷²⁰ *Alibaba Finance Arm Buys Eye-Scan Startup in First U.S. Foray*, BLOOMBERG, Sept. 13, 2016.

⁷²¹ Press Release, BioConnect and EyeVerify Collaborate to Improve Identity and Authentication in Financial Sector (Aug. 30, 2016).

⁷²² Press Release, Ant Financial, Ant Financial Closes \$4.5bn Series B Financing (Apr. 26, 2016).

⁷²³ Press Release, Ant Financial, Ant Financial Closes \$4.5bn Series B Financing (Apr. 26, 2016).

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Social Security Fund acquired a 5 percent stake in Ant Financial through a previous Series A round.⁷²⁴

According to Ant Financial's series B press release, Ant Financial's "strategic partnership with China Investment Corp Capital will support its continued push into international markets." In addition, the press release notes that the "capital raised in the Series B round will be invested partly in further development of the company's cloud computing infrastructure and biometric verification technologies."⁷²⁵

Apex/Lexmark

On November 29, 2016, Lexmark International, Inc. (Lexmark) announced the completion of its acquisition by a consortium of investors led by Apex Technology Co., Ltd. (Apex) and PAG Capital for \$3.6 billion.⁷²⁶ Lexmark manufactures and sells primarily laser printers and toner cartridges.⁷²⁷ Prior to the acquisition, the National IC Fund invested CNY 569 million (\$86 million) in Apex.⁷²⁸

The Chinese consortium paid well over Lexmark's market capitalization of about \$2.2 billion. Various other printer companies including Canon, Konica Minolta, and Ricoh are said to have considered acquiring Lexmark.⁷²⁹ The largest shareholder (at nearly 70 percent)⁷³⁰ in Apex is Ninestar (also known as Zhuhai Seine Technology Co., Ltd.), a company which a U.S. court found in 2012 had imported patent-infringing printer cartridges into the United States "deliberately and in bad faith."⁷³¹

In its 2015 Annual Report, Apex noted the guiding influence of the *Electronics Information Manufacturing Industry 12th Five-year Development Plan* and the *IC Industry 12th Five-year Development Plan*.⁷³² Apex also pointed to the encouragement in the State Council's 2009

⁷²⁴ *Alibaba Arm Ant Financial Completes Private Placement of Shares*, REUTERS, July 3, 2015.

⁷²⁵ Press Release, Ant Financial, Ant Financial Closes \$4.5bn Series B Financing (Apr. 26, 2016).

⁷²⁶ Press Release, Lexmark, Lexmark Announces Completion of Acquisition by Apex Technology and PAG Asia Capital (Nov. 29, 2016).

⁷²⁷ *Technology Hardware, Storage and Peripherals – Company Overview of Lexmark International, Inc.*, BLOOMBERG (last visited Nov. 20, 2017) ("Lexmark International, Inc., together with its subsidiaries, operates as a developer, manufacturer, and supplier of printing, imaging, device management, managed print services (MPS), document workflow, and business process and content management solutions worldwide. It operates through two segments, Imaging Solutions and Services (ISS), and Enterprise Software. The ISS segment offers a portfolio of color and monochrome laser printers, laser multifunction products, and dot matrix printers, as well as various cartridges, service parts, and other supplies for use in the installed base of laser, inkjet, and dot matrix printers. It also provides maintenance, consulting, and systems integration services, as well as MPS offerings, such as asset lifecycle management, implementation and decommissioning services, consumables management, remote device monitoring and management, and business process optimization services.").

⁷²⁸ Zhejiang Wansheng Co., *Zhejiang Wansheng Co., Ltd. Public Notice In Response to a Letter from the Shanghai Stock Exchange Requesting Information Disclosure Regarding the Company's Issuance of Shares to Acquire Assets and Raise Supporting Funds in a Related Party Transaction* [Chinese] (Code 603010, Public Notice 2017-042).

⁷²⁹ Charles Brewer, *Apex Closes Lexmark Deal; Up Next, HP's Acquisition of Samsung's Printer Biz*, ENX MAGAZINE, Dec. 27, 2016.

⁷³⁰ ZHUHAI APEX TECHNOLOGY CO., LTD. 2016 ANNUAL REPORT 72 [Chinese] (2016).

⁷³¹ *Ninestar Tech. Co. v. ITC*, 667 F.3d 1373 (Fed. Cir. 2012).

⁷³² ZHUHAI APEX TECHNOLOGY CO., LTD. 2015 ANNUAL REPORT SUMMARY 5-6 [Chinese] (2016).

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Electronic Information Industry Restructuring and Revitalization Plan for outstanding enterprises to “go out” and acquire high-tech foreign enterprises to strengthen their international competitiveness.⁷³³

Genimous/Spigot

In May 2016, China-based Genimous Investment Co., Ltd. (Genimous), formerly a manufacturer of electronics products, acquired 100 percent of Spigot Inc. (Spigot), a U.S.-based digital marketing company, for over \$250 million.⁷³⁴ Genimous was able to complete this transaction despite having recorded a net loss, after deducting income from any non-recurring gain or loss, of CNY 40 million (\$6 million) in 2015; that year, it collected only CNY 318 million (\$51 million) in revenue, CNY 55 million (\$9 million) less than in 2014.⁷³⁵ Spigot is one of the world’s leading digital performance-based marketing companies.⁷³⁶ According to its website, Spigot’s “proprietary technology platform marries the power of big-data with the flexibility of self-training algorithms to produce rapid, hyper-optimized results for clients.”⁷³⁷

The fact that the Genimous acquisition of Spigot conformed to Chinese industrial policy appears to have been instrumental in securing regulatory approval for the acquisition. In response to a China Securities Regulatory Commission inquiry about the transaction, Genimous explained that in accordance with the *Henan Province Provisional Measures on the Administration of Foreign Investment Projects*, foreign investments under \$300 million are managed by the Henan Province Development and Reform Commission (Henan DRC). After it was determined that the acquisition fell within the “encouraged” industries of the *Guiding Catalogue of Foreign Investment Industries*, the Henan DRC issued the *Notice Regarding Genimous Investment Ltd., Co. Acquisition in the U.S. of Spigot, Inc.*, which approved the acquisition.⁷³⁸

From its founding in 1996, Genimous manufactured and sold electronic products.⁷³⁹ Following the Spigot transaction, Genimous radically changed its business model, shifting its focus from the manufacture of electronic products to the mobile Internet software industry.⁷⁴⁰

⁷³³ ZHUHAI APEX TECHNOLOGY CO., LTD. 2015 ANNUAL REPORT SUMMARY 5-6 [Chinese] (2016).

⁷³⁴ GENIMOUS INVESTMENT CO., STOCK ISSUANCE AND CASH PAYMENT TO PURCHASE ASSETS AND RAISE THE ACCOMPANYING CAPITAL AND AFFILIATED TRANSACTION REPORT 1-1-5 [Chinese] (Apr. 2016).

⁷³⁵ GENIMOUS INVESTMENT CO. 2016 ANNUAL REPORT 7-8 [Chinese] (2017).

⁷³⁶ GENIMOUS INVESTMENT CO., STOCK ISSUANCE AND CASH PAYMENT TO PURCHASE ASSETS AND RAISE THE ACCOMPANYING CAPITAL AND AFFILIATED TRANSACTION REPORT 1-1-855 [Chinese] (Apr. 2016).

⁷³⁷ SPIGOT (Dec. 13, 2017), <https://www.spigot.com/>.

⁷³⁸ Genimous applied for approval from the Zhengzhou High-Tech Industrial Development Park, which determined that the acquisition fell within the “encouraged” industries of the *Guiding Catalogue of Foreign Investment Industries*, and subsequently submitted the application materials to the Zhengzhou Development and Reform Commission (Zhengzhou DRC) on November 6, 2015. On November 12, 2015, the Zhengzhou DRC consented to the foreign investment project. On November 24, 2015, the Henan DRC issued the *Notice Regarding Genimous Investment Ltd., Co. Acquisition in the U.S. of Spigot, Inc.*, which approved the acquisition. See GENIMOUS INVESTMENT LTD., CO. RESPONSE TO FEEDBACK FROM “NOTICE ON CHINA SECURITIES REGULATORY COMMISSION’S ADMINISTRATIVE PERMIT PROJECT INVESTIGATION SECOND FEEDBACK OPINIONS” 1-1-54 [Chinese] [152981], REVISED VERSION (Dec. 2015).

⁷³⁹ GENIMOUS INVESTMENT CO., STOCK ISSUANCE AND CASH PAYMENT TO PURCHASE ASSETS AND RAISE THE ACCOMPANYING CAPITAL AND AFFILIATED TRANSACTION REPORT 1-1-151 [Chinese] (Apr. 2016).

⁷⁴⁰ GENIMOUS INVESTMENT CO., STOCK ISSUANCE AND CASH PAYMENT TO PURCHASE ASSETS AND RAISE THE ACCOMPANYING CAPITAL AND AFFILIATED TRANSACTION REPORT 1-1-156 [Chinese] (Apr. 2016).

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Genimous cites several Chinese government policies and plans in connection with this strategic shift and its acquisition of Spigot. For instance, in Genimous's stock issuance and major transaction disclosure, the company points to government policies that support the development of the mobile Internet and encourage leading Chinese internet enterprises to expand into the international market, as background for the acquisition.⁷⁴¹ Genimous's acquisition of Spigot closely mirrors this policy directive. According to Genimous, the purpose of the acquisition of Spigot was to acquire quickly foreign technology, human capital, brand, and revenue channels,⁷⁴² and help Genimous expand into international markets.⁷⁴³

d) Biotechnology

Government Policies

The Chinese government has actively directed and supported the acquisition of biotechnology, which is an important component of advanced agricultural technology and medical technology.⁷⁴⁴ The emphasis of these policies has shifted over time, from enhancing food security and medical services to advanced manufacturing of biotechnology products.

A series of five-year plans specifically targets biotechnology. These include the “12th Five-year” *Biotechnology Development Plan*,⁷⁴⁵ the “13th Five-year” *Biological Industry Development Plan*⁷⁴⁶ (which was issued pursuant to the *13th Five-year Plan* and the “13th Five-year” *National Strategic Emerging Industry Development Plan*), and the “13th Five-year” *Biotechnology Innovation Special Plan*⁷⁴⁷ (pursuant to the *13th Five-year Plan* and the “13th Five-year” *Plan for Technology Innovation*).

⁷⁴¹ GENIMOUS INVESTMENT CO., STOCK ISSUANCE AND CASH PAYMENT TO PURCHASE ASSETS AND RAISE THE ACCOMPANYING CAPITAL AND AFFILIATED TRANSACTION REPORT 1-1-155 [Chinese] (Apr. 2016). The company cites a range of policies, including the *National Focused Support for High-Tech Areas* (2008); the *Electronic Information Industry Reorganization and Revitalization Plan* (2009); the *IT Industry “Five-year” Development Plan* (2012); the *Guiding Catalogue of Industrial Structure Adjustment* (2011); and the *Internet Plus Action Plan* (2015), which called for the promotion of the mobile internet and big data, while instructing leading internet companies to expand into the international market.

⁷⁴² GENIMOUS INVESTMENT CO., STOCK ISSUANCE AND CASH PAYMENT TO PURCHASE ASSETS AND RAISE THE ACCOMPANYING CAPITAL AND AFFILIATED TRANSACTION REPORT 1-1-104 [Chinese] (Apr. 2016).

⁷⁴³ GENIMOUS INVESTMENT CO., STOCK ISSUANCE AND CASH PAYMENT TO PURCHASE ASSETS AND RAISE THE ACCOMPANYING CAPITAL AND AFFILIATED TRANSACTION REPORT 1-1-157 [Chinese] (Apr. 2016).

⁷⁴⁴ In agriculture, genetically modified (GM) seed varieties can improve food security, output and production, and increase exports. See USAID, ABSP II & PROGRAM FOR BIOSAFETY SYSTEMS, BRIEF #1: WHAT IS AGRICULTURAL BIOTECHNOLOGY? (2004) (stating that biotechnology in medicine includes biological diagnostics and treatment, such as genetic analysis and gene therapy); see also Albert Sasson, MEDICAL BIOTECHNOLOGY: ACHIEVEMENTS, PROSPECTS AND PERCEPTIONS, UNITED NATIONS UNIVERSITY (Tokyo: 2005).

⁷⁴⁵ *Notice on the “12th Five-year” Biotechnology Development Plan* (MOST, Guo Ke Fa She [2011] No. 588, issued Nov. 4, 2011).

⁷⁴⁶ *National Development and Reform Commission Notice on Issuing the “13th Five-year” Biological Industry Development Plan* (NDRC, Fa Gai Gao Ji [2016] No. 2665, issued Dec. 20, 2016).

⁷⁴⁷ *MOST Notice on Issuing the “13th Five-year” Biotechnology Innovation Special Plan* (MOST, Guo Ke Fa She [2017] No. 103, issued Apr. 24, 2017).

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Collectively, these “Biotechnology Five-year Plans” direct Chinese enterprises to seek out advanced biotechnology overseas, through cooperation in research;⁷⁴⁸ promoting international biotechnology transfer;⁷⁴⁹ and promoting the acquisition of new products and “key technology” through mergers and acquisitions,⁷⁵⁰ aided by government financial support.⁷⁵¹

Other state planning documents articulate similar objectives. For instance, medical Five-year Plans and agricultural Five-year Plans underscore the need for advancing biotechnology⁷⁵² and promoting the use of foreign cooperation and acquisitions as a means of technology transfer.⁷⁵³ The biopharmaceutical sector is also a major target of the Made in China 2025 policy.⁷⁵⁴

The effect of these policies is evident in recent acquisitions of U.S. biotechnology firms. As discussed below, both Chinese SOEs and private enterprises have undertaken acquisitions in this sector to meet government objectives. Government financial support – including direct grants, state-backed investment funds, and debt financing by state-run policy banks – continues to play a key role in enabling these transactions.

Chinese Investments in the U.S. Biotechnology Sector

China National Chemical Corp./Syngenta AG

The acquisition of Swiss-based Syngenta by the China National Chemical Corp. (ChemChina) in May 2017 is the largest acquisition or merger ever completed by a Chinese enterprise, with a final price of \$43 billion on May 18, 2017.⁷⁵⁵ Through this acquisition, ChemChina gained access to a long list of patented genetically modified (GM) seed, agriculture, and biotech products cited as targets in Five-year Plans.⁷⁵⁶ ChemChina also obtained Syngenta’s entire U.S.

⁷⁴⁸ Notice on the “12th Five-year” Biotechnology Development Plan § 5(6) (MOST, Guo Ke Fa She [2011] 588, issued on Nov. 4, 2011).

⁷⁴⁹ MOST Notice on Issuing the “13th Five-year” Biotechnology Innovation Special Plan § 5(6).

⁷⁵⁰ National Development and Reform Commission Notice on Issuing the “13th Five-year” Biological Industry Development Plan § 8(4).

⁷⁵¹ National Development and Reform Commission Notice on Issuing the “13th Five-year” Biological Industry Development Plan § 7(3).

⁷⁵² “12th Five-year” Agricultural Science and Technology Development Plan § 3(1)2 (MOA, posted online Dec. 26, 2011); Notice on Issuing the “13th Five-year” Agricultural and Rural Science and Technology Innovation Special Plan § 4(2), Special Box 7 (MOST, Ministry of Agriculture, Ministry of Education, MIIT, Ministry of Land and Resources, Ministry of Environmental Protection, Housing Urban and Rural Construction Department, Ministry of Water Resources, SASAC, AQSIQ, State Forestry Administration, Chinese Academy of Sciences, China Meteorological Administration, National Food Administration, State Oceanic Administration, Supply and marketing cooperatives, Guo Ke Fa Nong [2017] No. 170, issued June 9, 2017); MOA Notice on Issuing the “13th Five-year” Agriculture Science and Technology Development Plan § 1 ¶ 2 (MOA, Nong Ke Jiao Fa [2017] No. 4, issued Jan. 25, 2017); the accelerating speed of biotechnology development is also cited as a reason for issuing the Ministry of Science and Technology Office Notice on Issuing “13th Five-year” Medical Machinery Science and Technology Innovation Special Plan § 1(2) (MOST, Guo Ke Ban She [2017] No. 44, May 26, 2017).

⁷⁵³ “12th Five-year” Agricultural Science and Technology Development Plan § 3(1)5 (MOA, posted online Dec. 26, 2011); Ministry of Science and Technology Office Notice on Issuing “13th Five-year” Medical Machinery Science and Technology Innovation Special Plan § 1(1) § 5(2).

⁷⁵⁴ Made in China 2025 Roadmap § 10(1).

⁷⁵⁵ Syngenta AG, Ex-99 (A) 13 (May 23, 2016), on file with the SEC..

⁷⁵⁶ “12th Five-year” Agricultural Science and Technology Development Plan §§ 3(1)2 (MOA, posted online Dec. 26, 2011); Notice on Issuing the “12th Five-year” Agricultural and Rural Science and Technology Development

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business, including over 4,000 employees, 33 research sites, and 31 production and supply sites.⁷⁵⁷

ChemChina is an SOE, and the transaction is directly linked to the “Going Out” strategy, as reported by *Xinhua News*.⁷⁵⁸ As a result of this transaction, two ChemChina executives who are also CCP officials – Ren Jianxin and Chen Hongbo – were appointed to the Syngenta board of directors, with Ren Jianxin named as chairman of the board.⁷⁵⁹ The transaction was financed in large part by loans from a consortium of Chinese state-run policy banks, municipal policy banks, private banks, bonds issued to special purpose vehicles backed by state-owned commercial and policy banks and the China Reform Holdings Corporation.⁷⁶⁰ This financing was made available even though a 2016 credit report on the ChemChina Group reported a debt-to-capital ratio of 74.78 percent.⁷⁶¹

Beijing Genomics Institute/Complete Genomics

In January 2013, Beijing Genomics Institute (BGI) acquired Complete Genomics for \$117 million.⁷⁶² Through the acquisition, BGI gained access to Complete Genomics’ “gene sequencing equipment intellectual property rights, and the development of domestic equipment production”⁷⁶³ – technology that the Chinese government has targeted in related sectoral Five-year Plans.⁷⁶⁴ In fact, NDRC featured the BGI acquisition of Complete Genomics in its report on

Plan §§ 2(4), 3(2)1 (MOST, Ministry of Agriculture, Ministry of Education, Ministry of Water Resources, Housing and Urban-Rural Development, Ministry of Land and Resources, AQSIQ, State Forestry Administration, Chinese Academy of Sciences, National Food Administration, China Meteorological Administration, State Oceanic Administration, National Federation of Supply and Marketing Cooperatives, issued Mar. 15, 2012); *Notice on Issuing the “13th Five-year” Agricultural and Rural Science and Technology Innovation Special Plan* § 4(2)1. In the aforementioned *Agriculture Five-year Plans*, the importance of developing GMO technology is not only for food security, but also for agricultural industrialization strategy. Gene technology in an agricultural context is also part of the biotechnology Five-year Plans. *MOST Notice on Issuing the “13th Five-year” Biotechnology Innovation Special Plan* § 4(2)5; *Notice on the “12th Five-year” Biotechnology Development Plan* § 4(3)2.

⁷⁵⁷ SYNGENTA, 2016 ANNUAL REVIEW 26 (2016).

⁷⁵⁸ *Financial Watch: Acquisition of Syngenta Obtains Approval Chinese Capital Hugs the Whole World’s Resources for a Win-Win Strategy* [Chinese], XINHUA NEWS, 2017, available at http://www.gov.cn/xinwen/2017-04/06/content_5183844.htm.

⁷⁵⁹ Syngenta AG, *Ex-99.(A)*, A-1 (May 23, 2016), on file with the SEC. Ren Jianxin is the chairman of the CCP Committee of ChemChina. Chen Hongbo is secretary of the Hubei Province Discipline Inspection Commission, which acts as the local version of the central level Commission responsible for implementing President Xi Jinping’s anti-corruption drive. Syngenta AG, *Ex-99.(A)*, A-1 (May 23, 2016), on file with the SEC.

⁷⁶⁰ Syngenta AG, Schedule 13D 12 (May 18, 2017), on file with the SEC.

⁷⁶¹ Dagong Global Credit Rating Co., Ltd., Tracking the Rating Announcement 1, 22 [Chinese] (Da Gong Bao SD [2016] No. 242).

⁷⁶² *Shenzhen Beijing Genomics Institute Completes Acquisition of the United States’ Complete Genomics* [Chinese], GENOMICS Mar. 19, 2013, http://www.genomics.cn/news/show_news?nid=99461.

⁷⁶³ Jiang Jiang, and Han Qi, NDRC INSTITUTE OF INDUSTRIAL ECONOMICS AND TECHNOLOGY ECONOMICS “12TH FIVE-YEAR” PERIOD GENE DETECTION INDUSTRY DEVELOPMENT REVIEW [Chinese] (Aug. 8, 2017), available at http://gjss.ndrc.gov.cn/zftp/xyqzlxhg/201708/t20170802_856974.html.

⁷⁶⁴ *Notice on Issuing the “13th Five-year” Agricultural and Rural Science and Technology Innovation Special Plan* § 4(2)1; *MOST Notice on Issuing the “13th Five-year” Biotechnology Innovation Special Plan* §§ 4(1)1, 4(1)3, 4(2)1.

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biopharmaceutical industry development during the 12th Five-year Plan period, under the section heading “overseas acquisitions begin to take shape.”⁷⁶⁵

BGI has even been a major recipient of assistance from the state policy bank, CDB.⁷⁶⁶ The Shenzhen municipal government has singled out BGI as a target of support in multiple government measures, including development of both an international and domestic outsourcing industry.⁷⁶⁷ BGI has received local government grants from the Donghu New Technology Development Zone Management Committee Finance Bureau for its Complete Genomics subsidiary to develop a local Chinese production base of Complete Genomics sequencer machinery.⁷⁶⁸

Although BGI is privately-owned, it has operated at the center of China’s gene research industry since participating in the Human Genome Project, and has evident links to the government. BGI leadership features multiple officials who held CCP and government positions before joining BGI.⁷⁶⁹

In a company press release, BGI states that, “after the acquisition of U.S. listed company Complete Genomics (CG), BGI rapidly achieved technology transformation and re-innovation” resulting in the development and production of new gene sequencer machines in 2015 and

⁷⁶⁵ Wang Xuegong, Zhu Jun, Zhong Qian, Li Qian, CHINA BIOPHARMACEUTICAL MANAGEMENT ASSOCIATION, REVIEW OF BIOPHARMACEUTICAL INDUSTRY DEVELOPMENT DURING THE 12TH FIVE-YEAR PLAN [Chinese] (Aug. 2, 2017), available at http://gjss.ndrc.gov.cn/zttp/xyqzlxhg/201708/t20170802_856972.html.

⁷⁶⁶ CDB officials have held up BGI as an example of a company that CDB supports. *Zheng Zhijie, Servicing Innovation Development with Development Type Finance* [Chinese], ECONOMIC DAILY Dec. 16, 2016. Zheng Zhijie is the Vice Party Secretary, Vice Chairman and President of CDB. *Leader Profiles – Zheng Zhijie* [Chinese], CDB, <http://www.cdb.com.cn/gykh/ldbz/zjzj> (last visited Oct. 26, 2017). In 2010, BGI also received CNY 600 million (\$89 million) in loans from CDB to help BGI purchase sequencing machinery from U.S.-based Illumina. The sequencing machines were installed in BGI’s Hong Kong facility, putting BGI “on the path to become world’s largest sequencing facility;” Illumina stated that this was the single largest order to date for its technology. Press Release, Illumina Inc., Acquisition Puts Beijing Genomics Institute on Path to Become World’s Largest Sequencing Facility (Jan. 12, 2010), available at <https://www.illumina.com/company/news-center/press-releases/press-release-details.html?newsid=1374343>. CDB Shenzhen Branch referred to BGI as a “[s]trategic emerging industry leading enterprise.” See *China Development Bank Shenzhen City Branch Injects New Momentum into Upgrading ‘Shenzhen Quality’ Sustainability* [Chinese], SHENZHEN PRESS GROUP, Jan. 5, 2013, available at <http://www.cbrc.gov.cn/shaanxi/docPcgView/C4DDC24B06384D3CB47268D0DDDA18AC/600211.html>, (last visited Oct. 26, 2017).

⁷⁶⁷ *Shenzhen City Economic Trade and Informatization Commission Notice on Issuing the Shenzhen City Service Outsourcing Development Plan (2012-2015)* § 4(2)2 (Shenzhen City Trade and Informatization Commission, Jing Ji Mao Xin Xi Fu Wu Zi [2012] No. 43); *Shenzhen City People’s Government Office Notice on Issuing Several Measures on Strengthening Enterprise Service Support of Strategic Emerging Industry Development (2012-2013 Annual)* §5(27) (Shenzhen City People’s Government Office, Shen Fu Ban Han [2012] No. 169, issued Nov. 19, 2012); *Notice on Issuing Shenzhen National Innovation City Overall Plan (2008-2015)* §4(1)2 (Shen Fu [2008] No. 201, issued Sept. 21, 2008).

⁷⁶⁸ SHENZHEN BGI HOLDINGS CO., LTD., 2017 FIRST HALF ANNUAL REPORT 129, 138 [Chinese] (Aug. 2017), available at www.szse.cn/.

⁷⁶⁹ At the management level, the Executive vice President and Director of Strategic Planning at BGI, Yanmei Zhu, used to be vice-director of the Yangpu District NDRC, and the Chairman and CEO of BGI Agriculture Group, Yonghong Mei, is currently also the director of the China National GeneBank, and previously held the position of Deputy Party Secretary and Mayor of Jining City. *About BGI/Leadership* [Chinese], BGI-Shenzhen, http://www.genomics.cn/en/navigation/show_navigation?nid=292 (last visited Nov. 1, 2017).

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2016.⁷⁷⁰ This achievement is attributed to “focusing on the 18th National Congress of the CCP[...] internal governance, foreign relations, and national defense, and governance of the Party, the nation, and the military.”⁷⁷¹

e) Industrial Machinery and Robotics

Government Policies

Developing advanced industrial machinery, including robotics with industrial applications, is an important policy goal of the Chinese government. Chinese authorities hope to increase productivity⁷⁷² at a time of increasing labor costs in China,⁷⁷³ and are attempting to acquire advanced technology so that China can join the ranks of high-tech manufacturing economies by 2025.⁷⁷⁴ By supporting acquisitions in machinery and robotics, Chinese authorities hope to gain access to advanced technology, and they see this technology as vital to meeting Made in China 2025 policy objectives with respect to the production of large aircraft,⁷⁷⁵ auto manufacturing,⁷⁷⁶ agricultural machinery,⁷⁷⁷ and medical technology.⁷⁷⁸

Several state planning documents underscore the importance of obtaining technology for advanced industrial machinery – for instance, the *Robotics Five-year Plan*, the *Industry Technology Innovation Capacity Development Plan (2016-2020)*⁷⁷⁹ (*Industry Five-year Plans*), and the recently released *Next-Generation Artificial Intelligence Development Plan*⁷⁸⁰ (*AI Plan*).

As these documents make clear, a key strategy for the “transformation and upgrading” of these sectors is a combination of government support⁷⁸¹ and the use of mergers and acquisitions to gain access to foreign technology.⁷⁸² Authorities have made frequent use of this approach,

⁷⁷⁰ BGI High-Throughput Gene Sequencer Debut “to Forge Ahead for Five-years” Large-Scale Achievements Exhibition [Chinese], BGI (Oct. 11, 2017), http://www.genomics.cn/news/show_news?nid=105368 (last visited Nov. 1, 2017).

⁷⁷¹ BGI High-Throughput Gene Sequencer Debut “to Forge Ahead for Five-years” Large-Scale Achievements Exhibition [Chinese], BGI (Oct. 11, 2017), http://www.genomics.cn/news/show_news?nid=105368 (last visited Nov. 1, 2017).

⁷⁷² *Made in China 2025 Notice* § 2(3); *State Council Notice on Issuing the Next-Generation of Artificial Intelligence Development Plan* § 3(2) (State Council, Guo Fa [2017] No. 35, issued Aug. 20, 2017).

⁷⁷³ *Made in China 2025 Notice*, Section 1(2); *Notice on Issuing Robotics Industry Development Plan (2016-2020)* § 1, ¶ 4 (MIIT, NDRC, MoF, Gong Xin Bu Lian Gui [2016] No. 109, issued Mar. 21, 2016).

⁷⁷⁴ *Made in China 2025 Notice* § 1(3), § 2(1).

⁷⁷⁵ *Made in China 2025 Notice* § 1(3). See also Zhejiang Wanfeng Technology Development Co. Ltd./Paslin Co.

⁷⁷⁶ *Made in China 2025 Notice* § 3(6)2.

⁷⁷⁷ *Made in China 2025 Notice* § 3(6)8.

⁷⁷⁸ *Made in China 2025 Notice* § 3(6)2, § 3(6)10.

⁷⁷⁹ *Ministry of Industry and Information Technology Notice on Issuing the Industry Technology Innovation Capacity Development Plan (2016-2020)* (MIIT, Gong Xin Bu Gui [2016] No. 344, issued Oct. 31, 2016).

⁷⁸⁰ *State Council Notice on Issuing the Next-Generation of Artificial Intelligence Development Plan* § 3(2) (State Council, Guo Fa [2017] No. 35, issued Aug. 20, 2017).

⁷⁸¹ *Industry Five-year Plan* § 5(3); *AI Plan* § 4(1); *Robotics Five-year Plan* § 4(3).

⁷⁸² *Industry Five-year Plan* § 5(5); *AI Plan* § 4(3). The *Robotics Five-year Plan* § 4(6) also suggests government support for “international cooperation.”; *State Council Guiding Opinion on Promoting International Capacity and Equipment Cooperation* § 46(35) (State Council, Guo Fa [2015] No. 30, issued May 13, 2015), also, § 4 of the same plan is wholly dedicated to improving “Going Out” capacity, and § 6 is dedicated to “Expanding Policy Support Intensity.”

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supporting transactions through grants, state-led policy bank debt financing, and financing through state-sponsored investment funds.

Chinese Investments in the U.S. Industrial Machinery and Robotics Sector

Zhejiang Wanfeng Technology Development Co. Ltd./Paslin Co.

The acquisition activities of Zhejiang Wanfeng Technology Development Co. (Wanfeng) illustrate the approach outlined above. In 2016, Wanfeng wholly acquired Paslin Co. (Paslin), a developer and manufacturer of “complex automated assembly and welding systems,”⁷⁸³ for \$302 million.⁷⁸⁴ Paslin Co. produces advanced manufacturing robots used primarily in the assembly of automobiles.⁷⁸⁵

To support the acquisition, Shaoxing City provided CNY 300 million (\$45 million) to the Wanfeng Acquisition Fund, which was able to raise a total of CNY 1 billion (\$151 million) from Wanfeng and other public and private companies,⁷⁸⁶ significantly reducing Wanfeng’s own capital contribution to the acquisition. In an interview with a Chinese financial daily, Wanfeng Director Zhao Yahong attributed the Paslin acquisition to financial assistance from the Wanfeng Acquisition Fund.⁷⁸⁷ Wanfeng is also a recipient of government assistance, including a total of CNY 73 million (\$11 million) in government grants from a combination of dozens of central and local governments.⁷⁸⁸

Although a private company, Wanfeng cultivates close ties to government authorities. The company is part of a family conglomerate, and run by Chen Ailian,⁷⁸⁹ a well-connected CCP member who served as a representative from Zhejiang Province at the 12th National People’s Congress (NPC) in 2016,⁷⁹⁰ where she proposed that the government establish a new China High-Tech Development Bank policy bank to provide “low-interest medium- and long-term loans” and “financial assistance” to enterprises in the high-tech manufacturing industry.⁷⁹¹ She is also currently a member of the Standing Committee of Shaoxing City’s 8th People’s

⁷⁸³ *Our Company*, PASLIN, <http://www.paslin.com/our-company/> (last visited Oct. 23, 2017).

⁷⁸⁴ Liang Zhen, *Zhejiang Wanfeng Acquires US Robotics Maker Paslin*, CHINA DAILY, Apr. 20, 2016.

⁷⁸⁵ *Milestones + History*, PASLIN, <http://www.paslin.com/milestones-history/> (last visited Oct. 23, 2017).

⁷⁸⁶ *Announcement on the 2016 Zhejiang Shaoxing Transformation and Upgrading Industry Fund Investment into Wan Feng Commercial Industry Merger and Acquisition Fund Project* [Chinese] (Shaoxing City Financial Bureau, issued Feb. 26, 2016).

⁷⁸⁷ Xu Ning, *Foreign Mergers and Acquisitions Adhere to the Industrial Chain and Value Chain High-End Extensions* [Chinese], JINRONG SHIBAO Aug. 28, 2017, available at <http://www.whjr.gov.cn/sinfo-2-36686-0.html> (last visited Oct. 23, 2017).

⁷⁸⁸ WANFENG AUTO WHEEL CO. LTD., 2016 ANNUAL REPORT 163-173 [Chinese] (Apr. 11, 2017), available at www.szse.com.

⁷⁸⁹ WANFENG AUTO WHEEL CO. LTD., 2016 ANNUAL REPORT 61-2 [Chinese] (Apr. 11, 2017), available at www.szse.com. Wanfeng is owned jointly by Chen Ailian’s husband, Wu Liangding, and her son, Wu Jie. Wu Liangding is the owner of Rifa Group, and Wu Jie is the President of Rifa Group, another large investment company.

⁷⁹⁰ *Representative List, ‘92 Zhejiang Representatives Group’* [Chinese], NPC, <http://www.npc.gov.cn/delegate/dbmd.action?id=b2> (last visited Oct. 28, 2017).

⁷⁹¹ *NPC Representative Chen Ailian: Establish the China High-Tech Development Bank* [Chinese], 2016 CCP and CPPCC Plenary Session Opinions, available at <http://zt.ccln.gov.cn/2016lh/tian/39017.shtml> (last visited Oct. 23, 2017).

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Congress,⁷⁹² the same municipal government which, a year earlier, had chosen her company to lead a joint private-public partnership (PPP) investment fund, the Wanfeng Commercial Industry Merger and Acquisition Fund (Wanfeng Acquisition Fund).⁷⁹³

By acquiring Paslin, Wanfeng not only gained access to advanced robotics technology, but also supported the objective of the municipal government of Shaoxing City, Zhejiang Province, to build a new aircraft manufacturing hub in its jurisdiction. This acquisition was supported by substantial government funding. Shaoxing City began issuing policy directives as early as 2012 in support of developing the city as a center for developing aircraft and aerospace equipment manufacturing. For instance, the *Shaoxing City Development Strategic Emerging Industry Key Field Guiding Catalogue (2013-2015)* identified GA manufacturing as a key “emerging information industry” and aerospace equipment as an “advanced equipment manufacturing industry,” and targeted both for investment and government support.⁷⁹⁴ Likewise, in 2016, the *Shaoxing City “13th Five-year” Industry Development Plan* stated that developing the city as an aviation hub was an important way of developing an “urban industrial development zone”⁷⁹⁵ in Shaoxing, and that such programs should be supported by government measures including establishing “industrial funds” and other “preferential policies.”⁷⁹⁶

Shaoxing City found a willing partner in Wanfeng, which began construction of the Wanfeng Aviation Special Village in 2016.⁷⁹⁷ Consistent with government policies, this site was designed to become a hub for aircraft and aerospace equipment manufacturing. The site was visited by representatives from the NDRC Planning Division in October 2016, and held up as an example of Zhejiang Province’s efforts in “promoting transformation and upgrading of traditional manufacturing.”⁷⁹⁸

Government authorities viewed Wanfeng’s acquisition of Paslin as pivotal to developing the aviation hub. According to the Zhejiang Province Financial Office, government support for the acquisition is part of “activating a strategic industry,” and plays a role in a larger Shaoxing City-Wanfeng joint strategy to develop the Wanfeng Jingyuan High-End Equipment Park through a jointly administered fund valued at CNY 1 billion.⁷⁹⁹ Concurrent with financing the Paslin

⁷⁹² *Shaoxing Municipality 8th People’s Congress Standing Committee Member List* [Chinese], SHAOXING MUNICIPALITY, available at http://sxrd.sx.gov.cn/art/2017/4/17/art_14842_1115531.html (last visited Oct. 28, 2017).

⁷⁹³ *Announcement on the 2016 Zhejiang Shaoxing Transformation and Upgrading Industry Fund Investment into Wan Feng Commercial Industry Merger and Acquisition Fund Project* [Chinese] (Shaoxing City Financial Bureau, issued Feb. 26, 2016).

⁷⁹⁴ *Shaoxing City Government Office Forwards Economic and Information Commission Notice on Shaoxing City Development Strategic Emerging Industry Key Fields Guiding Catalogue (2013-2015)* (Shaoxing City Government Office, Shao Zheng Ban Fa [2012] No. 166, issued Dec. 14, 2012).

⁷⁹⁵ *Shaoxing City “13th Five-year” Industry Development Plan* § 4(2), ¶ 8 (Shi Jing Xin Wei, posted June 30, 2016).

⁷⁹⁶ *Shaoxing City “13th Five-year” Industry Development Plan* § 6(2).

⁷⁹⁷ *Development Process* [Chinese], WANFENG AUTO HOLDING GROUP, <http://www.wfjt.com/develop.php> (last visited Oct. 30, 2017).

⁷⁹⁸ *National Development and Reform Commission Research Team Visits Wanfeng Auto* [Chinese], WANFENG AUTO HOLDING GROUP, <http://www.wfjt.com/news-detail.php?id=971> (last visited Oct. 30, 2017).

⁷⁹⁹ *Zhejiang Shaoxing, Three Ones’ Highly Effectively Deploying Government Industry Funds ‘Energy Storage’ Effectiveness* [Chinese], ZHEJIANG PROVINCE FINANCIAL OFFICE (May 10, 2017), http://m.mof.gov.cn/czxw/201705/t20170509_2596548.htm (last visited Oct. 23, 2017).

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acquisition, the fund forged plans to establish “three major functional zones for intelligent equipment, robotics, and R&D” inside the Wanfeng Jingyuan High-End Equipment Park, designed to form the “core of the Wanfeng Aviation Village.”⁸⁰⁰

This transaction exemplifies China’s IDAR approach to transferring foreign technology. Within one year of acquiring Paslin, Wanfeng has already invested CNY 800 million (\$118 million) in developing high-end robotics manufacturing capacity – based on technology acquired from Paslin – in Shaoxing City.⁸⁰¹ The use of Paslin’s robotic manufacturing technology is described in a Shaoxing City government report as an “important force in Shaoxing’s, even Zhejiang’s, future aviation manufacturing industry.”⁸⁰² As Chen Ailian stated, “by going through overseas mergers and acquisitions, we can absorb advanced technology, obtain brand value and sales channels, enter the high-end market, and greatly enhance Shaoxing enterprises’ position in global market competition.”⁸⁰³ In its *Report on Development of China’s Outward Investment and Economic Cooperation 2016*, MOF explained that, through the Paslin acquisition, Wanfeng successfully “obtained key technology for the field of robotics.”⁸⁰⁴

Northern Heavy Industries Group Co. Ltd./Robbins Co.

Northern Heavy Industries Group (NHI), an SOE owned by China’s central government, acquired the Robbins Company (Robbins) through a “three-phase merger,” beginning in 2016.⁸⁰⁵ NHI first invested heavily in Robbins, then increased its stake to 61 percent, and intends to acquire a 100 percent stake in the future.⁸⁰⁶ Through this transaction, NHI gained access to Robbins’ manufacturing capacity with respect to “advanced, underground construction machinery.”⁸⁰⁷ As an SOE, NHI pursues state policy goals, including “the four upgrades (technological upgrades, market upgrades, management upgrades, and talent upgrades), and major equipment and high-end sets [of products],” which the company describes as “the major striking direction.”⁸⁰⁸ China Exim was the only bank that financed NHI’s acquisition of

⁸⁰⁰ Zhejiang Shaoxing, *Three Ones’ Highly Effectively Deploying Government Industry Funds ‘Energy Storage’ Effectiveness* [Chinese], ZHEJIANG PROVINCE FINANCIAL OFFICE (May 10, 2017), http://m.mof.gov.cn/czxw/201705/t20170509_2596548.htm (last visited Oct. 23, 2017).

⁸⁰¹ Zhejiang Shaoxing, *Three Ones’ Highly Effectively Deploying Government Industry Funds ‘Energy Storage’ Effectiveness* [Chinese], ZHEJIANG PROVINCE FINANCIAL OFFICE (May 10, 2017), http://m.mof.gov.cn/czxw/201705/t20170509_2596548.htm (last visited Oct. 23, 2017).

⁸⁰² Zhejiang Shaoxing, *Three Ones’ Highly Effectively Deploying Government Industry Funds ‘Energy Storage’ Effectiveness* [Chinese], ZHEJIANG PROVINCE FINANCIAL OFFICE (May 10, 2017), http://m.mof.gov.cn/czxw/201705/t20170509_2596548.htm (last visited Oct. 23, 2017).

⁸⁰³ Wang Dandong, *Our City Introduces Encouraging Privately Operated Enterprise Going Out Three Year Action Plan for 12 Industry Leaders to Enter the List of Cultivated Multinational Companies* [Chinese], SHAOXING DAILY, July 25, 2017, available at http://www.sx.gov.cn/art/2017/7/25/art_126_1144927.html (last visited Oct. 23, 2017).

⁸⁰⁴ MOFCOM, *Report on Development of China’s Outward Investment and Economic Cooperation 2016* 148 (Dec. 2016).

⁸⁰⁵ *About Us*, THE ROBBINS COMPANY, <http://www.therobbinscompany.com/about/> (last visited Oct. 20, 2017). This is NHI’s second significant acquisition in the high-tech tunnel boring machinery field, following on the acquisition of NFM Technologies of France. In a similar “three-stage merger” pattern, NHI first acquired 70 percent of NFM Technologies in 2007, and increased its ownership stake to 100 percent in 2011. *History*, NFM TECHNOLOGIES, <http://www.nfm-technologies.com/-History-.html> (last visited Nov. 1, 2017).

⁸⁰⁶ *About Us*, THE ROBBINS COMPANY, <http://www.therobbinscompany.com/about/> (last visited Oct. 20, 2017).

⁸⁰⁷ *About Us*, THE ROBBINS COMPANY, <http://www.therobbinscompany.com/about/> (last visited Oct. 20, 2017).

⁸⁰⁸ *Group Introduction* [Chinese], NHI, <http://www.china-sz.com/jituanjianjie/> (last visited Oct. 20, 2017).

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Robbins,⁸⁰⁹ and China Exim identified the acquisition as an “important project”⁸¹⁰ and an “international industrial capacity cooperation” project.⁸¹¹ As such, the transaction qualified for China Exim’s “Two Preferential” loan programs, which generally provide financing on below-market terms.⁸¹²

Midea Group Co., Ltd./Kuka AG (2017)

In 2017 the Midea Group Co., Ltd. (Midea) bought €3.7 billion (\$4.2 billion) worth of shares to expand its original 13.51 percent share in Kuka AG (Kuka) to 94.55 percent.⁸¹³ Kuka AG is based in Germany, but has substantial assets in the United States.⁸¹⁴ Midea explained that the transaction would promote “transformation and upgrading,”⁸¹⁵ noting that by “taking KUKA as a platform, we will continue the layout of industrial robots, commercial robots, service robots and artificial intelligence, and actively develop key components in the field of industrial automation.”⁸¹⁶

Although Midea is privately owned,⁸¹⁷ the acquisition relied on financing from a consortium of banks headed by Chinese state-led policy banks. In particular, China Exim provided €770

⁸⁰⁹ *Exim Bank Liaoning Branch Actively Promotes Supply-side Reform Deploys the Role of Policy-type Finance Functions to Support Liaoning Equipment Manufacturing Industry Transformation and Upgrading* [Chinese], THE EXPORT IMPORT BANK OF CHINA, http://english.eximbank.gov.cn/tm/nineteen/list_1198_30375.html, (last visited Oct.20, 2017).

⁸¹⁰ EXPORT-IMPORT BANK OF CHINA, ANNUAL REPORT2016, 57. The two preferential programs are the Concessional Loan and Preferential Export Buyer’s Credit programs.

⁸¹¹ *First Half Year Liaoning Province Equipment Manufacturing Foreign Investment Grows Three Fold* [Chinese], Policy Office of the NDRC Old Industrial Base Revitalization Division (July 28, 2017), http://dbzxs.ndrc.gov.cn/ztp/dwkf/201707/t20170728_855981.html (last visited Oct. 28, 2017); *Exim Bank Liaoning Branch Actively Promotes Supply-side Reform Deploys the Role of Policy-type Finance Functions to Support Liaoning Equipment Manufacturing Industry Transformation and Upgrading* [Chinese], THE EXPORT IMPORT BANK OF CHINA, http://english.eximbank.gov.cn/tm/nineteen/list_1198_30375.html (last visited Oct. 20, 2017).

⁸¹² EXPORT-IMPORT BANK OF CHINA, ANNUAL REPORT2016, 37. The two preferential programs are the Concessional Loan and Preferential Export Buyer’s Credit programs. These loans generally have a subsidized interest rate of 2-3 percent and a term of 15-20 years. See THE EXPORT IMPORT BANK OF CHINA, TWO PREFERENTIAL” LOAN BUSINESS INTRODUCTION [Chinese], slide 5 (2013).

⁸¹³ MIDEA GROUP CO., LTD 2016 ANNUAL REPORT 77 (Mar. 31, 2017), available at www.szse.cn.

⁸¹⁴ *About Kuka*, KUKA, <https://www.kuka.com/en-us/about-kuka/>. The company’s U.S. locations comprise: KUKA Assembly and Test Corporation (Saginaw, MI); KUKA College USA - Shelby Township (Shelby Township, MI); KUKA ROBOTICS CORPORATION (Shelby Township, MI); KUKA Systems North America LLC (Sterling Heights, MI); KUKA Toledo Production Operations LLC (Toledo, OH); Reis Robotics USA Inc. d/b/a KUKA Industries (Carpentersville, IL); Swisslog Healthcare – Chicago Office (Schaumburg, IL); Swisslog Healthcare – Dallas Office (Farmers Branch, TX); Swisslog Healthcare – North America Headquarters (Denver, CO); Swisslog Healthcare – North Carolina (Kannapolis, NC); Swisslog Healthcare – Philadelphia Office (Bensalem, PA); Swisslog Healthcare – Seattle Office (Kirkland, WA); Swisslog Logistics – Americas Regional Headquarters (Newport News, VA); Swisslog Logistics – Midwest Office (Mason, OH); Swisslog Logistics – West Coast Office (Salida, CA).

⁸¹⁵ MIDEA GROUP CO., LTD 2016 ANNUAL REPORT 44 (Mar. 31, 2017), available at www.szse.cn.

⁸¹⁶ MIDEA GROUP CO., LTD 2016 ANNUAL REPORT 44 (Mar. 31, 2017), available at www.szse.cn.

⁸¹⁷ Midea Group is 34.75 percent owned by Midea Holding Co., Ltd., the parent, which is 94.55 percent owned by He Xiangjian (individual), who also owns 1.2 percent of Midea Group directly. Other shareholders hold less than 3 percent of shares each. MIDEA GROUP CO., LTD 2016 ANNUAL REPORT 83, 86 (Mar. 31, 2017), available at www.szse.cn.

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million (\$870 million) in loans,⁸¹⁸ and in a press release, linked this loan to the “One Belt One Road” and to promoting “international industrial capacity and equipment manufacturing cooperation” strategies, both of which are part of the “Going Out” strategy. China Exim states that the acquisition will “assist in optimizing the domestic robotics industry layout, promote the process of multi-industry production automation, and enhance China’s intelligent manufacturing technology level.”⁸¹⁹

f) Renewable Energy

Government Policies

In the early 2000s, Chinese companies attempted significant oil and shale investments in the United States to improve China’s energy security⁸²⁰ and gain access to advanced technology.⁸²¹ After the major oil SOE China National Offshore Oil Corp. (CNOOC), one of China’s major state-owned oil companies, failed in its bid to acquire Unicol in 2005,⁸²² it signed a series of shale gas “drill and carry”⁸²³ agreements with foreign companies in 2010.⁸²⁴ CNOOC’s attempts to invest in such drill and carry deals in the United States fell off after CNOOC acquired Canada’s Nexen in 2013 for \$15 billion.⁸²⁵ Nexen is a company with advanced shale gas technology,⁸²⁶ of the kind targeted by Chinese development plans.⁸²⁷

Beginning in 2014, Chinese outbound investments in the U.S. energy sector declined significantly, especially in oil and gas. This decline appears to reflect a significant drop in

⁸¹⁸ *Export-Import Bank of China Guangdong Branch Participates in Signing Ceremony for Bank Conglomerate for Financing Acquisition of Midea’s KUKA* [Chinese], XINHUA NEWS, Aug. 21, 2017, available at http://www.gd.xinhuanet.com/newscenter/2017-08/21/c_1121516160.htm.

⁸¹⁹ *Export-Import Bank of China Guangdong Branch Participates in Signing Ceremony for Bank Conglomerate for Financing Acquisition of Midea’s KUKA* [Chinese], XINHUA NEWS, Aug. 21, 2017, available at http://www.gd.xinhuanet.com/newscenter/2017-08/21/c_1121516160.htm.

⁸²⁰ For instance, in the *12th Five-year Energy Development Plan*, Part 2, Chapter 2, one of the “basic principles” is to “improve energy security and the level of [energy] guarantee,” see *State Council Notice on Issuing the 12th Five-year Energy Development Plan* (State Council, Guo Fa [2013] No. 2, issued Jan. 1, 2013).

⁸²¹ *The Notice on Issuing the Shale Gas Development Plan (2011-2015)* (NDRC, MoF, MLR, NEA, Fa Gai Neng Yuan [2012] No. 612, issued Mar. 23, 2012), at § 2(2)1(1), specifically calls for employing the IDAR methodology to gain and re-innovate advanced technology.

⁸²² David Barboza, Andrew Ross Sorkin, *Chinese Company Drops Bid to Buy U.S. Oil Concern*, THE NEW YORK TIMES, Aug. 3, 2005, available at <http://www.nytimes.com/2005/08/03/business/worldbusiness/chinese-company-drops-bid-to-buy-us-oil-concern.html>.

⁸²³ Drill and carry agreements are transactions in which one company invests in another company by covering the costs of ongoing or future development/drilling. This lowers the capital expenditure of the target company, and gives the investing company a share of the resulting asset once it is in operation.

⁸²⁴ CNOOC entered into two drill and carry agreements with the Chesapeake Energy Corporation in 2010. See Chesapeake Energy Corporation, 2010 Form 10-K 3, 113 (Mar. 1, 2011), on file with the SEC; see also Jenny Mandel, *Will U.S. Shale Technology Make the Leap Across the Pacific?*, E&E NEWS, July 17, 2012, <https://www.eenews.net/stories/1059967354>.

⁸²⁵ Press release, Nexen Company, Nexen Announces Completion of Acquisition by CNOOC Limited (Feb. 25, 2013); Euan Rocha, CNOOC Closes \$15.1 Billion Acquisition of Canada’s Nexen, REUTERS, Feb. 25, 2013.

⁸²⁶ *Operations - Shale Gas / Oil*, NEXEN COMPANY, available at <http://www.nexencnooltd.com/en/Operations/ShaleGasOil.aspx> (last visited Dec. 27, 2017).

⁸²⁷ See, e.g., *State Council Notice on Issuing the 12th Five-year Energy Development Plan (2011-2015)* (State Council, Guo Fa [2013] No. 2, Jan. 1, 2013).

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commodity prices;⁸²⁸ restrictions on investment related to an internal corruption crackdown carried out by the CCP and heavily focused on the energy industry;⁸²⁹ and growing attention to pollution and greenhouse gases, as reflected in the 2014 revision of the *Environmental Protection Law of the People's Republic of China*.⁸³⁰

Nonetheless, in recent years, Chinese investment appears to have grown in the renewable energy sector (see Section IV.C.1, above). For instance, as reported by AEI, China's investments in the U.S. energy sector in 2016 and 2017 were in alternative energy.⁸³¹

The Chinese government has issued several policies to support the development of renewable energy technologies. Both the *12th Five-year Renewable Energy Development Plan*⁸³² and *13th Five-year Renewable Energy Development Plan*⁸³³ touch on the need to develop renewable energy for the sake of “ensuring energy security, protecting the ecological environment, and responding to climate change.”⁸³⁴ Wind, solar, and hydroelectric power all play an important role in the development of renewable energy technologies.

Renewable energy equipment was listed as a “Key Sector” for development in the *Made in China 2025 Notice*.⁸³⁵ The more detailed *Made in China 2025 Roadmap* calls for 90 percent of Chinese electricity needs to be met by Chinese electricity producers by 2020, and for 30 percent of energy production to be exported by 2020.⁸³⁶ Likewise, the *Made in China 2025 Roadmap* seeks to have renewable energy equipment containing Chinese IP exceed 80 percent of China's domestic market by 2025.⁸³⁷

As discussed below, these policies have directed and influenced Chinese outbound investment in the renewable energy sector.

Chinese Investments in the U.S. Renewable Energy Sector

Hanergy Holding Group Ltd.

⁸²⁸ Henry Sanderson, Aniji Raval, David Sheppard, *Explainer: Why Commodities have Crashed*, FINANCIAL TIMES, Aug. 24, 2015.

⁸²⁹ *Perspectives on Energy Sector Corruption and Anti-Corruption* [Chinese], CENTRAL COMMISSION FOR DISCIPLINE INSPECTION AND MINISTRY OF SUPERVISION OF THE PEOPLE'S REPUBLIC OF CHINA (Jul. 30, 2014), http://www.ccdi.gov.cn/l/llsy/czfb/201407/t20140730_45795.html.

⁸³⁰ *Environmental Protection Law of the People's Republic of China* (adopted Dec. 26, 1989, amended Apr. 24, 2014).

⁸³¹ *China Global Investment Tracker* (Jan. 2018), AEI, available at <http://www.aei.org/china-global-investment-tracker>, (last visited Oct. 25, 2017). AEI data includes announced deals, as well as completed transactions; it is possible that some of these transactions have not closed as of the date of this report's publication.

⁸³² *National Development and Reform Commission Notice on Issuing the 12th Five-year Renewable Energy Development Plan* (NDRC, Fa Gai Neng Yuan [2012] No. 1207, issued July 31, 2012).

⁸³³ *National Development and Reform Commission Notice on Issuing the 13th Five-year Renewable Energy Development Plan* (NDRC, Fa Gai Neng Yuan [2016] No. 2619, issued Dec. 2016).

⁸³⁴ *National Development and Reform Commission Notice on Issuing the 13th Five-year Renewable Energy Development Plan*, Preamble and § 1(1).

⁸³⁵ *Made in China 2025 Notice* § 3(6)(7).

⁸³⁶ *Made in China 2025 Roadmap* § 7(1)2.

⁸³⁷ *Made in China 2025 Roadmap* § 7(1)2.

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Since 2012, Hanergy Holding Group Ltd. (Hanergy) has acquired several U.S. and European companies specializing in thin-film solar technology. Hanergy was founded in 1994, and aims to be the largest thin-film solar technology producer in the world.⁸³⁸ The advanced technology gained from these acquisitions contributed to Hanergy winning the “Made in China Top Ten Outstanding Quality Product Contribution Award” from the Made in China 2025 Summit Forum on November 25, 2017.⁸³⁹ In Hanergy’s press release on winning the award, Hanergy attributed its success to foreign acquisitions made between 2012 and 2014, and the company’s desire to meet goals set out in the *13th Five-year Energy Development Plan* and realize Made in China 2025 goals through its solar film production.

In 2011, CDB extended a CNY 30 billion (\$4.7 billion) line of credit to Hanergy, which provided “various types of financing services, including investment, loans, debt, leasing, and certification” to support Hanergy’s development.⁸⁴⁰ According to the official Hanergy press release on the CDB line of credit, the funding was intended to “assist Hanergy in introducing, digesting, and absorbing the world’s advanced solar energy power technology.”⁸⁴¹

The CDB line of credit appears to have fueled a buying spree. In 2013, Hanergy acquired Solibro, a world-leading German CIGS⁸⁴² thin-film module manufacturer⁸⁴³ for CNY 200 million (\$33 million). Hanergy had already acquired two U.S. companies by 2014 – Global Solar Energy⁸⁴⁴ and MiaSolé.⁸⁴⁵ These acquisitions gave Hanergy access to advanced CIGS technology, which enabled the company to achieve potential solar cell efficiency of nearly 20 percent.⁸⁴⁶ And in 2015, Hanergy acquired U.S.-based Alta Devices,⁸⁴⁷ an award-winning thin-film solar technology producer. Alta Devices had been named to MIT’s list of “Most Disruptive Companies” and broke multiple world records for solar cell efficiency.⁸⁴⁸

Hanergy’s efforts to acquire thin-film solar cell technology align with government policy objectives. This fact is evident in the *Solar Energy Power Technology Development “12th Five-*

⁸³⁸ *Thin-film Solar Power Generation*, HANERGY, http://www.hanergy.com/en/industry/industry_310.html (last visited Nov. 15, 2017).

⁸³⁹ Press Release, Hanergy, Hanergy Wins “Made in China Top Ten Outstanding Quality Product Contribution Award” [Chinese] (Dec. 8, 2017), available at http://www.hanergy.com/content/details_37_24993.html.

⁸⁴⁰ Zhao Xiaohui, Tao Junjie, *China Development Bank Will Provide CNY 30 billion to Hanergy Group to Support Development of Clean Energy* [Chinese], XINHUA NEWS, Nov. 11, 2013, <http://www.ccchina.gov.cn/Detail.aspx?newsId=15735&Tid=57> (last visited Nov. 6, 2017).

⁸⁴¹ *Hanergy Holding Group Obtains CNY 30 billion in China Development Bank Financial Support – Accelerating Clean Energy Development – Expanding Overseas Business* [Chinese], HANERGY http://www.hanergy.com/mobile/content/details_37_924.html (last visited Nov. 6, 2017) (emphasis added).

⁸⁴² Copper indium gallium selenide (CIGS) solar cells are one of three types of mainstream thin-film solar cells, a technology some analysts predict will be the market leader in thin-film technology due to “advantages on [sic] cost, flexibility, weight, and manufacturability.” See *Thin-Film Photovoltaic (PV) Cells Market Analysis to 2020*, SUN&WIND ENERGY, <http://www.sunwindenergy.com/news/thin-film-photovoltaic-pv-cells-market-analysis-2020> (last visited Nov. 6, 2017).

⁸⁴³ *About Us*, SOLIBRO, <http://solibro-solar.com/en/company/about-us/> (last visited Nov. 16, 2017).

⁸⁴⁴ HANERGY THIN FILM POWER GROUP LTD, 2013 ANNUAL REPORT 249 (Mar. 24, 2014).

⁸⁴⁵ HANERGY THIN FILM POWER GROUP LTD, 2013 ANNUAL REPORT 6 (Mar. 24, 2014).

⁸⁴⁶ HANERGY THIN FILM POWER GROUP LTD, 2013 ANNUAL REPORT 6 (Mar. 24, 2014).

⁸⁴⁷ HANERGY THIN FILM POWER GROUP LTD, 2015 ANNUAL REPORT 49 (Mar. 31, 2016).

⁸⁴⁸ *Company Highlights*, ALTA DEVICES, <https://www.altadevices.com/about-overview/> (last visited Nov. 6, 2017); HANERGY THIN FILM POWER GROUP LTD, 2015 ANNUAL REPORT 5 (Mar. 31, 2016).

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year” *Special Plan*,⁸⁴⁹ which affirmed the state objective of “break through scaling key equipment design and manufacturing bottlenecks in CIGS thin-film solar cell production lines.”⁸⁵⁰ Likewise, Hanergy’s president and chairman, Li Hejun, attributed his company’s success in acquiring these companies and becoming a world leader in thin-film solar panels to “the strong support of the local Party committee and government.”⁸⁵¹ Li Hejun serves in the Chinese People’s Political Consultative Conference (CPPCC) and is the vice chairman of the National Federation of Industry and Commerce.⁸⁵²

Chinese authorities have pointed to Hanergy as an example of “unceasingly enlarging the area of investment in developed countries in Europe and America.”⁸⁵³ In an article on Hanergy’s acquisition of MiaSolé, the Chinese consulate in San Francisco reportedly stated that the Chinese government has begun to restrict large loans to companies in the solar industry, now that the investments “have caused this industry to expand capacity by 17 times.”⁸⁵⁴

Goldwind/Renewable Energy Systems Americas

In 2016, Goldwind Americas (Goldwind) acquired a 160 MW wind project from Renewable Energy Systems Americas in a “balance of plant”⁸⁵⁵ deal worth \$250 million.⁸⁵⁶ Through the transaction, Goldwind obtained the ability to install 64 of its own Permanent-Magnet Direct Drive (PMDD) 2.5 MW wind turbines in the United States,⁸⁵⁷ the same technology Goldwind acquired through previous overseas transactions. A May 2016 report states that once complete, the wind project will become Goldwind’s largest U.S. wind project to date.⁸⁵⁸

Goldwind is a subsidiary of Xinjiang Goldwind Technology Holding Co., Ltd., a company whose three largest shareholders are (1) undisclosed shareholders from the Hong Kong Stock

⁸⁴⁹ *Notice on Issuing Solar Energy Power Technology Development “12th Five-year” Special Plan* (MOST, Guo Ke Fa Ji [2012] No. 198, issued Mar. 27, 2012).

⁸⁵⁰ *Notice on Issuing Solar Energy Power Technology Development “12th Five-year” Special Plan* § 4(2)2(3).

⁸⁵¹ Zhang Zhirong, *Li Xinyuan Agricultural Rate of Investment Promotion Small Group Team Arrives at Hangery Holding Group to Inspect and Present* [Chinese], GUIGANG NEWS NET Aug. 31, 2017, available at <http://www.gxgg.gov.cn/news/2017-08/140463.htm> (last visited Nov. 6, 2017).

⁸⁵² *Li Hejun Introduction* [Chinese], HANERGY <http://www.hanergy.com/about/mrLi.html> (last visited Nov. 6, 2017).

⁸⁵³ MOFCOM, *Report on Development of China’s Outward Investment and Economic Cooperation 2016* 132 (Dec. 2016).

⁸⁵⁴ *Hanergy Completes U.S. Thin Film Solar Energy Firm Acquisition* [Chinese], MOFCOM (Jan. 17, 2013), <http://dwtztj.hzs.mofcom.gov.cn/article/i/jyjl/1/201301/20130100005202.shtml> (last visited Nov. 6, 2017).

⁸⁵⁵ This “balance of plant” deal is an agreement between RES, which supplies and installs the infrastructure for the project as a contractor, and Goldwind, which installs the wind turbines – here, Goldwind’s China-produced 2.5 MW PMDDs. See Press Release, Goldwind, Goldwind Americas Signs 160 MW Texas Deal with RES (May 17, 2016); Press Release, Goldwind, Rattlesnake Stirs Texas, available at <http://www.goldwindamericas.com/rattlesnake-stirs-texas>; XINJIANG GOLDWIND SCIENCE & TECHNOLOGY CO., LTD., OVERSEAS SUPERVISION REPORT 7 [Chinese] (Aug. 25, 2017).

⁸⁵⁶ XINJIANG GOLDWIND SCIENCE & TECHNOLOGY CO., LTD., OVERSEAS SUPERVISION REPORT 6-7 [Chinese] (Aug. 25, 2017), available at www.goldwind.com.cn. Goldwind Americas’ parent company, Goldwind Holdings, provided bridge financing and “construction and tax equity financing and a long-term ERCOT fixed price hedge for power production.” See Press Release, Xinjiang Goldwind Technology Holding Company, Goldwind Americas Signs 160 MW Texas Deal with RES (May 17, 2016).

⁸⁵⁷ XINJIANG GOLDWIND SCIENCE & TECH CO., LTD, 2016 ANNUAL REPORT 18 [Chinese] (Mar. 2017).

⁸⁵⁸ *Texas Wind-Power Project Acquired*, CHINA DAILY (USA), May 23, 2016.

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Exchange (18.23 percent), (2) the SOE Xinjiang Wind Energy Ltd., Co. (13.74 percent), and (3) the central SOE China Three Gorges New Energy Ltd., Co. (10.52 percent).⁸⁵⁹

The PMDD technology that Goldwind now produces and is exporting to the United States is technology that Goldwind gained by acquiring a 70 percent share of German company Vensys in March 2008.⁸⁶⁰ Goldwind's acquisition of Vensys was financed through a €4.9 million (\$7 million) equity investment and a €36.34 million (\$54 million) "financing guarantee" loan⁸⁶¹ with the China Construction Bank as the guarantor.⁸⁶² At the time, MOFCOM pointed to the acquisition of Vensys as an example of "German Enterprises Actively Undertaking Technology Transfer to China,"⁸⁶³ and as an example of the effectiveness of the "Financing Guarantee" policy bank loan program.⁸⁶⁴

The Goldwind 2016 Annual Report points to the *13th Five-year Plan*'s push to have "three to five equipment manufacturing enterprises fully attain international advanced levels, and clearly increase market share" as one of Goldwind's "policy considerations" for future development planning.⁸⁶⁵

g) Automotive

Government Policies

Since 2004, the Chinese government has issued a series of plans to encourage technological development in the automotive sector:

- The NDRC 2004 *Policy on Development of the Automotive Industry*,⁸⁶⁶ established the basis for China's automotive industrial policy after WTO accession. It includes specific provisions on mandating approvals of foreign investments,⁸⁶⁷ in addition to long-term

⁸⁵⁹ XINJIANG GOLDWIND SCIENCE & TECH CO., LTD, 2016 ANNUAL REPORT 53 [Chinese] (Mar. 2017).

⁸⁶⁰ Press Release, Xinjiang Goldwind Technology Holding Company, Announcement on Acquiring German Vensys Energy Holding Company §4(1) [Chinese] (Jan. 25, 2008), available at www.szse.cn.

⁸⁶¹ The "Financing Guarantee" loan is a special loan program from Chinese policy banks in which a Chinese enterprise can guarantee a loan for a foreign enterprise, and by using a Chinese loan, gain access to lower interest loan financing to "lower the cost of financing". See, *Credit Business* [Chinese], CHINA CONSTRUCTION BANK, available at <http://www.ccb.com/tokyo/cn/service/244780.html> (last visited Nov. 1, 2017).

⁸⁶² Press Release, Xinjiang Goldwind Technology Holding Company, Announcement on Acquiring German Vensys Energy Holding Company §5(2)2 (Jan. 25, 2008). This loan scheme allows a Chinese bank, in this case CCB, to back Goldwind, which otherwise may not have qualified for a loan large enough for the transaction. *Credit Business* [Chinese], CHINA CONSTRUCTION BANK, available at <http://www.ccb.com/tokyo/cn/service/244780.html> (last visited Nov. 1, 2017).

⁸⁶³ *Overview of German Wind Industry, Current Situation and Prospects of Cooperation with China* § 2(1) [Chinese], MOFCOM'S GERMAN COUNSELLOR'S OFFICE (Dec. 14, 2009), <http://munich.mofcom.gov.cn/article/ztdy/201005/20100506926532.shtml> (last visited Nov. 1, 2017).

⁸⁶⁴ *Overview of German Wind Industry, Current Situation and Prospects of Cooperation with China* § 2(4) [Chinese], MOFCOM'S GERMAN COUNSELLOR'S OFFICE (Dec. 14, 2009), available at <http://munich.mofcom.gov.cn/article/ztdy/201005/20100506926532.shtml> (last visited Nov. 1, 2017).

⁸⁶⁵ XINJIANG GOLDWIND SCIENCE & TECH CO., LTD, 2016 ANNUAL REPORT 12 (Mar. 2017).

⁸⁶⁶ *Policy on Development of the Automotive Industry* (NDRC, Order No. 8, issued May 21, 2004).

⁸⁶⁷ *Policy on Development of the Automotive Industry*, arts. 43, 44.

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objectives to create global well-known brands⁸⁶⁸ and indigenously develop electric, hybrid, and alternative fuel technologies.⁸⁶⁹

- The State Council's 2009 *Plan on Adjusting and Revitalizing the Auto Industry* pledges CNY 10 billion (\$1.4 billion)⁸⁷⁰ in government financing over three years to promote technological progress, part of China's CNY 4 trillion (\$586 billion)⁸⁷¹ stimulus plan. The financing would go toward targeted support for safer, fuel-efficient, environmentally friendly vehicles; filling domestic supply chain gaps; and creating collective platforms for technology R&D and testing in the auto parts sector.⁸⁷²
- The 2009 *Opinions on Promoting the Sustainable and Healthy Development of China's Exports of Automotive Products*⁸⁷³ targets a 10 percent share of global auto parts exports for Chinese automakers by 2020.⁸⁷⁴ The *Opinions* also call for improvements in the composition of exports to include a higher share of indigenous brands and passenger sedans, as well as new energy vehicles.⁸⁷⁵
- The 2013 MIIT *Guiding Opinions on Accelerating and Promoting Industry Mergers and Restructuring* set a target to establish three to five globally competitive, large-scale domestic automakers through mergers and acquisitions among existing players and a consolidation of their respective global assets.⁸⁷⁶
- China identified NEVs as one of the priority research areas in the 2006 (*MLP*),⁸⁷⁷ and NEVs were selected as one of China's seven SEIs, as set forth in the 2012 *12th Five-year Strategic Emerging Industries Development Plan*.⁸⁷⁸ Pursuant to these plans, the *Energy-Saving and New-Energy Automotive Industry Development Plan (2012-2020)*,⁸⁷⁹ which

⁸⁶⁸ *Policy on Development of the Automotive Industry*, art. 3.

⁸⁶⁹ *Policy on Development of the Automotive Industry*, art. 8.

⁸⁷⁰ *Plan on Adjusting and Revitalizing the Auto Industry* § 4(9) (State Council, Issued Mar. 20, 2009).

⁸⁷¹ In 2008, the dollar value of this stimulus plan was reported as \$586 billion. See, *China Seeks Stimulation*, THE ECONOMIST, Nov. 10, 2008. Due to subsequent appreciation of the CNY against the USD, the plan would now be worth approximately \$600 billion.

⁸⁷² *Plan on Adjusting and Revitalizing the Auto Industry* § 4(9) (State Council, Issued Mar. 20, 2009).

⁸⁷³ *Opinions on Promoting the Sustainable and Healthy Development of China's Exports of Automotive Products* (MOFCOM, NDRC, MIIT, MOF, General Administration of Customs, and General Administration of Quality Supervision, Inspection and Quarantine, Shang Chan Fa [2009] No. 523, issued Oct. 23, 2009).

⁸⁷⁴ *Opinions on Promoting the Sustainable and Healthy Development of China's Exports of Automotive Products* § 2(2) (MOFCOM, NDRC, MIIT, MOF, General Administration of Customs, and General Administration of Quality Supervision, Inspection and Quarantine, Shang Chan Fa [2009] No. 523, issued Oct. 23, 2009).

⁸⁷⁵ *Opinions on Promoting the Sustainable and Healthy Development of China's Exports of Automotive Products* § 2(2) (MOFCOM, NDRC, MIIT, MOF, General Administration of Customs, and General Administration of Quality Supervision, Inspection and Quarantine, Shang Chan Fa [2009] No. 523, issued Oct. 23, 2009).

⁸⁷⁶ *Guiding Opinions on Accelerating and Promoting Industry Mergers and Restructuring* § 2(1) (MIIT, NDRC, MOF, and nine other ministries, Gong Xin Bu Lian Chan Ye [2013] No. 16, published Jan. 22, 2013).

⁸⁷⁷ *Notice on Issuing the National Medium- and Long-Term Science and Technology Development Plan Outline (2006-2020)* § 3(36) (State Council, Guo Fa [2005] No. 44, issued Dec. 26, 2005).

⁸⁷⁸ *Notice on Issuing the 12th Five-year National Strategic Emerging Industries Development Plan* § 3(7).

⁸⁷⁹ *Energy-Saving and New-Energy Automotive Industry Development Plan (2012-2020)* § 3(2) (State Council, Guo Fa [2012] No. 22, issued June 28, 2012).

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was issued in 2012, sets ambitious targets for increasing the production and consumption of NEVs in China (see Section II.B.2(a) above for further discussion).

The Chinese government has made clear that outbound investment is an important part of this strategy. For instance, the 2009 *Plan on Adjusting and Revitalizing the Automotive Industry* states:

Formulate policies corresponding to aspects including technological development, government procurement, and financing channels; guide automotive manufacturing enterprises in making the development of indigenous brands a priority for enterprise strategy; support automotive manufacturing enterprises to use multiple methods, including indigenous development, coordinate development, and domestic and *foreign acquisitions*, to develop indigenous brands.⁸⁸⁰

State-owned entities have played an important role in China's automotive sector. Two of China's three largest automakers – First Automotive Works (FAW) and Dongfeng Motor – are central SOEs administered by SASAC. Several other automakers, including SAIC, are owned by provincial governments.⁸⁸¹ The market leaders in China in terms of sales are SOEs, and these firms are the principal beneficiaries of government-mandated joint ventures with foreign carmakers.⁸⁸²

State-owned policy banks have provided financial support to Chinese automakers investing overseas. For example, the provincial state-owned automaker Chery Motors signed a strategic cooperation agreement with China Exim that involved a CNY 10 billion (\$1.4 billion) loan to finance overseas expansion.⁸⁸³ When China Exim in 2012 highlighted its support for China's outbound investment, it listed Chery alongside major steel, machinery and petrochemical companies.⁸⁸⁴

Chinese Investments in the U.S. Automotive Sector

AVIC-Pacific Century Motors/Nexteer Automotive

AVIC, the central SOE tasked with developing China's aviation industry, has been an active investor in the U.S. automotive sector.

⁸⁸⁰ *Plan on Adjusting and Revitalizing the Automotive Industry* § 3(6).

⁸⁸¹ *State Asset Report Independent Interpretation of 48 Central and 18 Local SOEs Enter the 2017 Fortune World 500 List* [Chinese], <http://www.sasac.gov.cn/n2588025/n2588164/n4437287/c7428253/content.html>. The "500 List" includes BAIC Group and GAC Group as local state owned auto manufacturers.

⁸⁸² A June 2015 article lists the leading brands in China as: (1) Volkswagen (VW -FAW – SAIC joint venture); (2) Chang'an; (3) Hyundai (Hyundai – BAIC joint venture); (4) Buick (GM – SAIC joint venture); (5) Ford (Ford – Chang'an joint venture). *Vehicle Sales Rankings in China: Strong Performance for Domestic Brands, Changan Ranked Second Behind Market Leader Volkswagen*, AUTOMOTIVE WORLD, June 1, 2015.

⁸⁸³ Patti Waldmeir, *Chery Gets \$1.5bn Loans from China Exim Bank*, FINANCIAL TIMES, Dec. 8, 2008.

⁸⁸⁴ *Economic Daily: Export-Import Bank of China Strategy Transformed into Innovation Development* [Chinese], THE EXPORT IMPORT BANK OF CHINA (Oct. 30, 2012), http://www.eximbank.gov.cn/tm/medialist/index_26_16570.html.

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In 2010, Pacific Century Motors purchased Nexteer Automotive, a maker of steering systems, from General Motors,⁸⁸⁵ in a deal with an estimated value of \$450 million.⁸⁸⁶ At the time, Pacific Century Motors was owned by an investment company under the Beijing municipal government. In 2011, majority ownership of Pacific Century Motors was transferred to the central SOE AVIC, which acquired a 51 percent stake in the firm.⁸⁸⁷ As a result, AVIC is now the majority owner of Nexteer Automotive.

AVIC/Hilite International

In May 2014, ACIF Electromechanical Systems Co., Ltd. (AVICEM), a subsidiary of AVIC, acquired Hilite International, a German-headquartered company with operations in the United States and China, in a deal valued at €473 million (\$629 million).⁸⁸⁸ Hilite International describes itself as “a global supplier of leading automotive system solutions” with “engine, transmission and emission control products [that] are used to improve fuel efficiency and reduce emissions for passenger cars and commercial vehicles.”⁸⁸⁹ The company’s U.S. operations comprise three units: (1) a sales and R&D center in Orion, Michigan; (2) a production site for camphasing valves, on/off & PWM solenoids, cylinder deactivation valves and integrated solenoid module assemblies in Whitehall, Michigan; and a (3) production site for machining of rotors and stators for camphasers, assembly and testing of camphasers, and coil armature assemblies for 4WD and AWD applications in Dallas, Texas.⁸⁹⁰ Hilite’s China operations comprise a Shanghai office that coordinates the firm’s sales, purchasing, and engineering activities for Asia, and a plant in Changshu, Jiangsu province, which makes DCT components and VVT phasers and valves.⁸⁹¹

AVIC/Henniges Automotive

In June 2015, AVIC purchased 51 percent of the shares of Henniges Automotive, a producer of sealing and anti-vibration solutions for high-end automobiles.⁸⁹² The remaining 49 percent of Henniges was acquired by BHR, an investment firm backed by Bank of China, one of China’s four large state-owned commercial banks, and the Chinese funds Bohai Industrial Investment Funds and Shanghai Ample Harvest (a subsidiary of Shanghai Harvest Fund).⁸⁹³ The entire acquisition was valued at around \$600 million.⁸⁹⁴

⁸⁸⁵ Press Release, General Motors, GM Finalizes Sale of Nexteer to Pacific Century Motors (Nov. 29, 2010).

⁸⁸⁶ *G.M. Sells Parts Maker to a Chinese Company*, NEW YORK TIMES, Nov. 29, 2010.

⁸⁸⁷ *State-owned AVIC Buys US-based Nexteer*, CHINA DAILY, Apr. 11, 2011.

⁸⁸⁸ Press Release, Hilite International, Hilite International Accelerates Global Growth Prospects with New Owner AVICEM (May 29, 2014).

⁸⁸⁹ Press Release, Hilite International, Hilite International Opens New Plant in China (Dec. 6, 2011).

⁸⁹⁰ *Locations – USA*, HILITE INTERNATIONAL, <http://www.hilite.com/corporate/locations/usa.html> (last visited Nov. 20, 2017).

⁸⁹¹ *Locations – USA*, HILITE INTERNATIONAL, <http://www.hilite.com/corporate/locations/usa.html> (last visited Nov. 20, 2017).

⁸⁹² *AVIC Agrees to Acquire the U.S. Automotive Parts Manufacturer Henniges* [Chinese], CNSTOCK, June 30, 2015, <http://news.cnstock.com/news/bwqx-201506-3477281.htm>.

⁸⁹³ *BHR Acquires Henniges Automotive*, BHR Partners (Sept. 8, 2015); *BHR and AVIC Auto Acquire Henniges Automotive*, PR NEWswire, Sept. 15, 2015.

⁸⁹⁴ *BHR and AVIC Auto Acquire Henniges Automotive*, PR NEWswire, Sept. 15, 2015.

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Wanxiang Acquisitions in the NEV Sector

In 2013, A123 Systems, which produces lithium batteries for electric vehicles, was purchased by the U.S. subsidiary of Wanxiang Group, Wanxiang America Corp., for \$257 million.⁸⁹⁵ In 2014, Fisker Automotive, a plug-in vehicle producer, was sold in bankruptcy to Wanxiang America, a subsidiary of Wanxiang Group, for \$149 million.⁸⁹⁶

Lithium batteries are a focal point of NEV development in China, and the Chinese government has restricted market access for foreign battery makers in China's fast growing NEV industry.⁸⁹⁷ Lithium-ion batteries are used in the automotive sector for start-stop technology, and for use in electric and hybrid vehicles. The automotive sector presents a significant growth opportunity for lithium-ion batteries.⁸⁹⁸

Wanxiang Group has been classified as a nationally important corporation by the State Council, and it receives government support in exchange for fulfilling national policy objectives.⁸⁹⁹ Wanxiang received at least \$6.5 million in Chinese government subsidies in 2015,⁹⁰⁰ and received approximately \$8.8 million in government subsidies in 2016.⁹⁰¹ Based on the company's 2015 annual report, Wanxiang's chairman has been a member of the NPC,⁹⁰² and one board member has received a special salary from the State Council.⁹⁰³

3. Leveraging “International Innovation Resources” Through Engagement with Silicon Valley

The Chinese leadership is pursuing an “innovation-driven” strategy for civilian and military development, seeking to become a science and technology superpower⁹⁰⁴ and emerge as a leading innovator by 2030.⁹⁰⁵ In pursuit of this agenda, Chinese investment activities have been particularly prevalent in U.S. technology centers such as Silicon Valley and Boston.

⁸⁹⁵ *Chinese Firm Wins A123 Despite U.S. Tech Transfer Fears*, REUTERS, Jan. 29, 2013.

⁸⁹⁶ J. Voelcker, *Fisker Assets Sold for \$149 Million to Wanxiang, Chinese Parts Maker*, GREEN CAR REPORTS, Feb. 15, 2014; *China's Wanxiang Wins U.S. Bankruptcy Auction for Fisker Automotive*, REUTERS, Feb. 14, 2014.

⁸⁹⁷ *Chinese Battery Manufacturers Increasing Their Ternary Battery Production Volume*, MEHR NEWS AGENCY, Aug. 29, 2016.

⁸⁹⁸ *Lithium-ion Battery Market to Reach \$41 Bn*, INDUSTRIAL MINERALS, Sept. 2, 2013; *Insight: Electric Car Revolution Brightens Outlook for a Medley of Metals*, THE PENINSULA Oct. 5, 2016. A marginal increase in electric vehicle units translates into a large increase in battery demand; for example, each Tesla electric vehicle contains battery capacity of approximately 85,000 watt-hours (Wh), compared to just 5 Wh for an average cell phone.

⁸⁹⁹ *Joyson Electronics Receives RMB 14.95 Million for a Great and Strong New Energy Vehicle Industry* [Chinese], NINGBO JOYSON ELECTRONICS HOLDING LTD CORP. (Apr. 16, 2014), available at <http://www.joyson.cn/index.php?a=shows&catid=84&id=169>.

⁹⁰⁰ WANXIANG GROUP, 2015 ANNUAL REPORT 131 [Chinese] (2015).

⁹⁰¹ WANXIANG GROUP, 2016 ANNUAL REPORT 132 [Chinese] (2015).

⁹⁰² WANXIANG GROUP, 2015 ANNUAL REPORT 53 [Chinese] (2015).

⁹⁰³ WANXIANG GROUP, 2015 ANNUAL REPORT 53 [Chinese] (2015).

⁹⁰⁴ English translation of the Chinese term *keji chuangxin qianguo*.

⁹⁰⁵ *Xi Jinping: Comprehensively Advance an Innovation Driven Development Strategy, Advance New Leaps in Realizing National Defense and Military Construction* [Chinese], XINHUA NEWS, Mar. 13, 2016, http://news.xinhuanet.com/politics/2016lh/2016-03/13/c_1118316426.htm. See also the official strategy released on innovation-driven development: *CCP State Council Releases the “National Innovation-Driven Development*

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According to data from CB Insights, China-based investors have engaged in technology investments (*i.e.*, corporate, VC, angel, private equity, etc.) amounting to \$19 billion in the United States, across 641 different deals, since 2012, with particular focus on AI, robotics, and augmented or virtual reality.⁹⁰⁶ China's sovereign wealth fund, CIC, is reportedly taking steps to begin direct investment in U.S. technology start-ups.⁹⁰⁷ In recent years, Chinese investment activities have accounted for approximately 10 percent of all U.S. venture deals per year, and have started to receive greater attention.⁹⁰⁸

Chinese investments in U.S. technology start-ups are part of a multifaceted technology and knowledge transfer strategy. This strategy is reflected in several national plans, including the Made in China 2025 policy, the “*Internet Plus*” *Artificial Intelligence Three-Year Action Implementation Plan*, the *Robot Industry Development Plan (2016-2020)*,⁹⁰⁹ and the *13th Five-year National Science and Technology Innovation Plan*. The *Next-Generation Artificial Intelligence Development Plan*, released in July 2017, calls for a “Going Out” strategy that includes overseas mergers and acquisitions, equity investments, VC, and the establishment of research and development centers abroad.⁹¹⁰

Reflecting these objectives, Chinese entities have established research centers and “talent bases” in Silicon Valley, directly funded and partnered (*e.g.*, joint laboratories) with academic research institutions, and actively recruit top talent through government programs.

For example, iFlytek, a prominent Chinese AI start-up focused on intelligent voice recognition and speech-to-text products established an office in Silicon Valley in 2016.⁹¹¹ According to iFlytek's website, it receives 863 program funding⁹¹² for speech technology and is recognized as a key software enterprise under the National Planning and Layout of Key Software Companies.⁹¹³ iFlytek also serves as the leading unit on MIIT's “Working Group on Technical

Strategy Guidelines [Chinese], XINHUA NEWS, May 19, 2016, http://news.xinhuanet.com/politics/2016-05/19/c_1118898033.htm.

⁹⁰⁶ *From China with Love: AI, Robotics, AR/VR Are Hot Areas For Chinese Investment In US*, CB INSIGHTS, Aug. 1, 2017.

⁹⁰⁷ Theodore Schleifer, *Chinese investors are making moves to increase their spending in Silicon Valley*, RECODE, Oct. 29, 2017. To date, China Investment Corporation investments in U.S. tech start-ups have been through investments in VC firms as a limited partner.

⁹⁰⁸ Paul Mozur, Jane Perlez, *Chinese Tech Investment Flying Under the Radar, Pentagon Warns*, NEW YORK TIMES, Apr. 7, 2017.

⁹⁰⁹ *Release of the Robot Industry Development Plan* [Chinese], NATIONAL DEVELOPMENT AND REFORM COMMISSION (Apr. 26, 2016), http://www.ndrc.gov.cn/zcfb/zcfbghwb/201604/t20160427_799898.html.

⁹¹⁰ *State Council Notice on the Issuance of the New Generation Artificial Intelligence Development Plan* (State Council, Guo Fa [2017] No. 35, issued July 8, 2017), http://www.gov.cn/zhengce/content/2017-07/20/content_5211996.htm.

⁹¹¹ *iFlytek – Why is it One of the ‘World’s Most Intelligent Companies’?* [Chinese], ECONOMICS DAILY, Aug. 17, 2017, http://www.ce.cn/cysc/tech/gd2012/201708/17/t20170817_25062923.shtml.

⁹¹² The 863 program is a National High-Tech R&D Program which provides funding to promote advances in technology. See *National High-tech R&D Program (863) Program*, MOST, available at <http://www.most.gov.cn/eng/programmes1> (last visited Dec. 22, 2017).

⁹¹³ *Administrative Measures for Accreditation of National Planning and Layout Key Software Enterprises* (SAT, MOFCOM, and MIIT, Fa Gai Gao Ji [2005] No. 2669, issued Dec. 20, 2005), pursuant to the *Several Policies on Encouraging the Development of the Software and Integrated Circuit Industry* (State Council, Guo Fa [2000] No.

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Standards for Interactive Chinese Language Technology.”⁹¹⁴ In addition, iFlytek operates from the Anhui Hefei High-tech Industry Development Zone, one of at least 28 MIIT designated national-level MCF bases.⁹¹⁵ MCF bases seek to foster development of China’s high-tech industry to support military modernization and economic development.⁹¹⁶

A number of major Chinese technology companies have established offices and laboratories in Silicon Valley, and there are even a number of new incubators that seek to establish closer engagement with start-ups. These same companies, in turn, are cooperating with the Chinese government to establish technology centers within China, often in the form of local government initiatives that focus on emerging and dual-use technologies.

For instance, in 2014, the Hangzhou Hi-Tech Venture Capital Co. Ltd., a company owned by the municipal government of Hangzhou,⁹¹⁷ founded the Hangzhou Silicon Valley Incubator,⁹¹⁸ located in Redwood City, California.⁹¹⁹ As of late 2016, the incubator had supported 30 projects, investing a total of \$3.4 million, and attracting 41 overseas projects to settle or plan to return to Hangzhou, which has the official goal of becoming “China’s Silicon Valley.”⁹²⁰ Projects promoted in the incubator include autonomous driving and smart vehicles, robotics, and the conversion of exhaust gas into electrical energy.⁹²¹

In this context, it is important to consider that the “Going Out” strategy is part of a dual “Going Out and Drawing In” approach. While China incentivizes domestic companies to invest abroad, it also encourages innovative enterprises from Silicon Valley and worldwide to establish operations in China under the “Drawing In”⁹²² strategy. For example, the concept of “Drawing

18, issued June 24, 2000). Becoming an accredited “key software enterprise” requires companies to submit corporate records, including contracts, exports, and financial data, to the China Software Industry Association for examination. Accredited “key software companies” receive preferential tax treatment, notably a corporate income tax rate of 10 percent. *See also Company Profile*, IFLYTEK, <http://www.iflytek.com/about/index.html> (last visited Nov. 8, 2017).

⁹¹⁴ *Company Profile*, IFLYTEK, <http://www.iflytek.com/about/index.html> (last visited Nov. 8, 2017).

⁹¹⁵ *Description of National New Industrial Demonstration Base* [Chinese], MIIT (Feb. 2012),

<http://sfjd.miit.gov.cn/BaseInfoAction!findListIndustry.action>; Huai Chuai, *Let the World Hear ‘Anhui’s Voice’—Hefey High Tech Industry Development Zone Smart Language Industry’s Concentrated Development Base Quest* [Chinese], ANHUI DAILY, May 4, 2016,

http://www.iflytek.com/content/details_135_2092.html

⁹¹⁶ *Description of National New Industrial Demonstration Base* [Chinese], MIIT (Feb. 2012),

<http://sfjd.miit.gov.cn/BaseInfoAction!findListIndustry.action>.

⁹¹⁷ Company profile available on Hangzhou municipal government website, *available at*

http://www.hangzhou.gov.cn/art/2015/11/12/art_810110_1100.html (last visited Jan. 9, 2018).

⁹¹⁸ *Hangzhou Silicon Valley Incubator Going Out to Promote 41 Overseas High-tech Projects* [Chinese], HANGZHOU NEWS, Dec. 6, 2016, http://hznews.hangzhou.com.cn/jingji/content/2016-12/06/content_6410731.htm;

Hangzhou, Cross-Border Venture Capital Investment Gradually Improving [Chinese], HUANQIU NET, Dec. 21, 2016, <http://finance.huanqiu.com/roll/2016-12/9838718.html>.

⁹¹⁹ *The Journey to Knowledge Acquisition: Hangzhou Silicon Valley Incubator “Accomplish Great Things with Little Effort* [Chinese], HANGZHOU NET, Sept. 26, 2017, http://hznews.hangzhou.com.cn/jingji/content/2017-09/26/content_6671062.htm.

⁹²⁰ *Hangzhou Silicon Valley Incubator Going Out to Promote 41 Overseas High-tech Projects* [Chinese], HANGZHOU NEWS Dec. 6, 2016, http://hznews.hangzhou.com.cn/jingji/content/2016-12/06/content_6410731.htm.

⁹²¹ *Hangzhou Silicon Valley Incubator Going Out to Promote 41 Overseas High-tech Projects* [Chinese], HANGZHOU NEWS Dec. 6, 2016, http://hznews.hangzhou.com.cn/jingji/content/2016-12/06/content_6410731.htm.

⁹²² English translation of Chinese term *zou jin lai* or *yinjin*.

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In” regularly appears in the context of MOST initiatives and high-tech parks administered by local governments.⁹²³

Below, this dual “Going Out and Drawing In” approach is discussed in the context of the activities of Zhongguancun Development Group (ZGC Group).

Zhongguancun and the Zhongguancun Development Group

ZGC Group is an SOE established in April 2010 by the Beijing municipal government in order to accelerate development of Zhongguancun,⁹²⁴ a Beijing-based technology park vying with other localities to become China’s next Silicon Valley.⁹²⁵ ZGC Group is actively seeking opportunities to expand its overseas presence, particularly in the United States’ Silicon Valley. The ZGC Group website states:

[W]e are accelerating the expansion of overseas operations with a view toward “One Belt One Road” and the internationalization of Zhongguancun, in accordance with the concept of “drawing in, going out, and localization,” we are establishing a “one office, one fund, one center” constellation of operations in Silicon Valley, and are constructing a platform that links Zhongguancun to Silicon Valley through reciprocal exchanges. And by emulating the Silicon Valley model, we are undertaking an expansion of our operations toward innovation resource cluster areas and national strategic node areas in North America, Europe, and elsewhere, advancing the global distribution of Zhongguancun enterprises and accelerating the internationalization of Zhongguancun.⁹²⁶

In pursuit of these objectives, ZGC Group established the ZGC Group Silicon Valley Incubator Center in December 2012. According to ZGC Group, this center is “ZGC Group’s trial base for establishing a branch entity in the United States’ Silicon Valley.”⁹²⁷ It is located inside the Zhongguancun Hanhai Science and Technology Park, established by another Chinese company, Beijing Hanhai Zhiye Investment Management Co., Ltd.,⁹²⁸ a subsidiary of Beijing Hanhai Holdings Group.⁹²⁹ The Zhongguancun Hanhai Science and Technology Park is designed to

⁹²³ See, e.g., *Aligning to the Standards, Promote the Close Promotion of Science and Technology—Take Advantage of Strength, Build a Science Technology Innovation Center* [Chinese], SHENZHEN MUNICIPAL SCIENCE AND TECHNOLOGY INNOVATION COMMITTEE, (Nov. 18, 2016), available at <http://www.szsti.gov.cn/news/2016/11/18/1>.

⁹²⁴ *About Us* [Chinese], ZHONGGUANCUN DEVELOPMENT GROUP, <http://www.zgcgroup.com.cn/about/index.html> (last visited Jan. 11, 2018).

⁹²⁵ *Vying for “China Silicon Valley”* [Chinese], XINHUA NEWS, Apr. 20, 2017, http://news.xinhuanet.com/fortune/2017-04/20/c_129557023.htm.

⁹²⁶ *Group Overview* [Chinese], ZHONGGUANCUN DEVELOPMENT GROUP, <http://www.zgcgroup.com.cn/about/intro.html> (last visited Jan. 11, 2018).

⁹²⁷ *ZGC Group Silicon Valley Incubator Center Established and Open for Business* [Chinese], ZHONGGUANCUN DEVELOPMENT GROUP, Dec. 6, 2012, http://www.zgcgroup.com.cn/news/details_16_927.html.

⁹²⁸ *Zhongguancun Hanhai Silicon Valley Science and Technology Park Reaches Out Feelers to Silicon Valley to Influence the World* [Chinese], PEOPLE’S DAILY, Nov. 14, 2012, <http://usa.people.com.cn/n/2012/1114/c241376-19581508.html>.

⁹²⁹ Beijing Hanhai Holdings Group manages numerous science and technology parks outside China, and in introducing these overseas projects on its website, states: “In recent years, Beijing Hanhai Holdings Group, under the resolute guidance of leaders at all levels, including the national Ministry of Science and Technology, the

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serve as an incubator for U.S and Chinese ventures and to facilitate Chinese investment in the United States, promoting the combination of “drawing in⁹³⁰” – *i.e.*, attracting investment and talent to China – and implementing the “Going Out” strategy.⁹³¹

In October 2014, ZGC Group established ZGC Capital Corporation, a wholly-owned subsidiary based in Santa Clara, California.⁹³² Subsequently, in May 2016, the ZGC Innovation Center @ Silicon Valley, co-founded by ZGC Capital Corporation and the California-based fund C.M. Capital,⁹³³ officially began operations in Silicon Valley.⁹³⁴ The project is described by ZGC Capital Corporation as the “core of the Zhongguancun overseas strategy,” as a means of “advancing the going out of capital from Zhongguancun and the drawing in of advanced technology and talent,” and as a way to use a “‘fund plus incubator’ model” in order to “guide and support projects to come to Zhongguancun for industrial application.”⁹³⁵ An article by *Xinhua News*, republished on the Chinese government’s principal website, characterizes the ZGC Innovation Center @ Silicon Valley as “a strategic step” for Zhongguancun to establish a foreign presence and “leverage innovation resources.”⁹³⁶

ZGC Capital Corporation has been actively engaged in Silicon Valley. To date, the company’s investments there include Meta, an augmented reality platform; Everstring, a forecasting platform; and Optimizely, which helps corporate entities improve user conversion and activity.⁹³⁷ ZGC Capital Corporation has also invested in a series of local Silicon Valley funds, including Danhua, Plug & Play, and KiloAngel.⁹³⁸

Ministry of Commerce, and the Beijing municipal government, [...] has actively developed ‘Drawing In’ and ‘Going Out’ international science and technology exchange platforms [...] [and has] actively explored and guided the internationalization development of China’s science and technology incubators.” *Overseas Parks* [Chinese], HANHAI HOLDINGS, <http://www.hanhaiholding.com/overseas.aspx> (last visited Jan. 11, 2018); *Hanhai Holdings* [Chinese], HANHAI HOLDINGS, <http://www.hanhaiholding.com/> (last visited Jan. 11, 2018).

⁹³⁰ English translation of Chinese term *yin jin lai*.

⁹³¹ *Zhongguancun Development Group Leaders Guidance Work Touring Zhongguancun Hanhai Science and Technology Park* [Chinese], HANHAI HOLDINGS, Jan. 3, 2014, <http://www.hanhaiholding.com/newscon.aspx?id=80>. See also *U.S. Silicon Valley Zhongguancun Hanhai Science and Technology Park* [Chinese], HANHAI HOLDINGS, <http://www.hanhaiholding.com/overseascon.aspx?id=66> (last visited Jan. 11, 2018).

⁹³² *About Us*, ZGC CAPITAL CORPORATION, <http://zgccapital.com/about-us/> (last visited Jan. 11, 2018).

⁹³³ *Company Overview of CM. Capital Corporation*, BLOOMBERG,

<https://www.bloomberg.com/research/stocks/private/snapshot.asp?privcapId=3375306> (last visited Jan. 11, 2018) (“C.M. Capital Corporation is a private equity and VC arm of C.M. Capital (De) Inc. The firm also makes direct and indirect real estate investments. It also provides investment advisory services for various Cha Group affiliates. C.M. Capital Corporation was founded in 1969 and is based in Palo Alto, California.”).

⁹³⁴ *About Us* [Chinese], ZGC INNOVATION CENTER @ SILICON VALLEY, <http://zgccapital.com/cn/about-us/>. See also *Zhongguancun Silicon Valley Innovation Center to Build a Bridge of innovation and Cooperation for Sino-US Enterprises* [Chinese], PEOPLE’S DAILY, May 12, 2016, <http://world.people.com.cn/n1/2016/0512/c1002-28346254.html>.

⁹³⁵ *About Us* [Chinese], ZGC INNOVATION CENTER @ SILICON VALLEY, <http://zgccapital.com/cn/about-us/>. See also *Zhongguancun Silicon Valley Innovation Center to Build a Bridge of innovation and Cooperation for Sino-US Enterprises* [Chinese], PEOPLE’S DAILY, May 12, 2015, <http://world.people.com.cn/n1/2016/0512/c1002-28346254.html>.

⁹³⁶ *Zhongguancun Development Group Sets Up Innovation Center in Silicon Valley* [Chinese], XINHUA NEWS, May 12, 2016, http://www.gov.cn/xinwen/2016-05/12/content_5072814.htm.

⁹³⁷ *Structure of Overseas Funds*, ZHONGGUANCUN CAPITAL, <http://zgccapital.com/overseafund/>.

⁹³⁸ *Structure of Overseas Funds* [Chinese], ZHONGGUANCUN CAPITAL, <http://zgccapital.com/overseafund/>.

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In parallel, the company has engaged in talent recruitment. For example, in September 2017, ZGC Innovation Center @ Silicon Valley held a “Beijing-Silicon Valley Talent and Technology Summit” in Santa Clara, attended by the Acting Mayor of Beijing Chen Jining and the PRC’s San Francisco Consul General Luo Linquan. At the event, ZGC Capital Corporation described its ongoing efforts to identify overseas talent and technology that can “make a contribution to Beijing’s science and technology innovation development.”⁹³⁹ Furthermore, ZGC Group maintains an active partnership with Stanford University.⁹⁴⁰

D. China’s Acts, Policies, and Practices are Unreasonable

As Sections IV.A-IV.C confirm, China has engaged in a wide-ranging, well-funded effort to direct and support the systematic investment in, and acquisition of, U.S. companies and assets to obtain cutting-edge technology, in service of China’s industrial policy. USTR finds these acts, policies, and practices to be unreasonable under 19 U.S.C. § 2411(b)(1).

The “unreasonable” conduct of a foreign government is defined as an act, practice, or policy as one that “while not necessarily in violation of, or inconsistent with, the international legal rights of the United States is otherwise unfair and inequitable.”⁹⁴¹ In determining reasonableness, USTR also takes into account, to the extent appropriate, whether foreign firms in the United States are provided reciprocal opportunities to those denied U.S. firms.⁹⁴²

China’s acts, policies, and practices are unreasonable because they are directed and supported by the government, and unfairly target critical U.S. technology with the goal of achieving dominance in strategic sectors. As discussed in Section IV.B, China has directed enterprises to pursue outbound investment with the express objective of acquiring and transferring technology. China has articulated this objective in numerous state planning documents and policies, in furtherance of both military and economic goals. China has also drawn on a range of tools to implement this approach – for instance, through the control that it exercises over SOEs, state-backed banks, and investment funds, and through its outbound investment approval regime.⁹⁴³ As a result of these efforts, investments are often “politically driven and financially supported by Chinese government funds.”⁹⁴⁴ In short, the Chinese government has the means and authority to prevail (and does prevail) on Chinese firms on where to invest, what to invest, and how much to invest.

⁹³⁹ *Beijing Municipality Silicon Valley Talent and S&T Summit Held in the United States; Advances Synergies in Chinese and U.S. Innovation Resources* [Chinese], PEOPLE’S DAILY, Sept. 21, 2017, <http://world.people.com.cn/n1/2017/0921/c1002-29550670.html>.

⁹⁴⁰ In May 2013, ZGC Group partnered with Stanford University to establish the Zhongguancun-Stanford New Emerging Technologies Innovation Investment Fund. This fund, established with Stanford physics professor Shoucheng Zhang, has raised \$91.25 million to support innovative and disruptive technology projects from Stanford and Silicon Valley, and the funds are also to be used in cooperation with the Zhongguancun Development Group Silicon Valley International Incubation Center to guide and support technology projects to settle in Beijing’s Zhongguancun. *Overseas Investment Platform* [Chinese], ZHONGGUANCUN GROUP, http://www.zgcgroup.com.cn/business/overseas_funds.html.

⁹⁴¹ 19 U.S.C. § 2411(d)(3)(A).

⁹⁴² 19 U.S.C. § 2411(d)(3)(D).

⁹⁴³ See Section IV.B.

⁹⁴⁴ WILEY REIN, *Submission, Section 301 Hearing 4* (Sept. 28, 2017) (quoting Ryan Morgan, *Two Sessions: Made in China 2025*, APCO Forum (Mar. 26, 2017)).

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In market-based transactions, economic actors generally look to maximize return on their investment in making foreign investment and acquisition decision. Firms looking to acquire and invest in a foreign country generally seek integration, synergy, and efficiencies from these transactions.⁹⁴⁵

Likewise, investment funds seek financial returns. With respect to sovereign wealth funds, the “Santiago Principles” set out widely recognized practices and principles, developed and supported by members of the International Working Group of Sovereign Wealth Funds, including China’s China Investment Corporation (CIC). As described in the Santiago Principles,

The [sovereign wealth fund’s] investment decisions should aim to maximize risk-adjusted financial returns in a manner consistent with its investment policy, and based on economic and financial grounds.⁹⁴⁶

CIC ostensibly aims to “increase the return of China’s currency reserve above that of sovereign debt holding.”⁹⁴⁷

Market-based considerations, however, do not appear to be the primary driver of much of China’s outbound investment and acquisition activity in areas targeted by its industrial policies. Instead, China directs and supports its firms to seek technologies that enhance China’s development goals in each strategic sector.

Indeed, many of the Chinese firms that engage in overseas acquisitions in manufacturing do not appear to possess the firm-specific ownership advantages normally associated with acquiring firms, such as core technology, management and organizational skills, or brand names.⁹⁴⁸ Instead, Chinese firms’ comparative advantages rest with having a large domestic market and the support the government provides to Chinese outbound direct investment.⁹⁴⁹

The unreasonableness of China’s acts, policies, and practices is also evident in the non-reciprocal treatment of U.S. firms and investment in China. As discussed in Section II, China’s investment

⁹⁴⁵ *Chinese Investments in the United States: Impacts and Issues for Policymakers: Hearing Before the U.S.-China Econ. & Sec. Rev. Comm’n*, 115th Cong. 113 (2017) (statement of Robert D. Atkinson).

⁹⁴⁶ INT’L WORKING GRP. ON SOVEREIGN WEALTH FUNDS, SOVEREIGN WEALTH FUNDS GENERALLY ACCEPTED PRINCIPLES AND PRACTICES: SANTIAGO PRINCIPLES 8 (2008).

⁹⁴⁷ KEITH BLACK, CHARTERED ALTERNATIVE INV. ANALYST ASS’N, INVESTMENT STRATEGIES OF SOVEREIGN WEALTH FUNDS (2016); see also *CIC Culture Consensus*, CIC (Dec. 8, 2017), http://www.china-inv.cn/wps/portal/!ut/p/a1/jZJNb4JAEIZ_DVf2FQmgt60ffllt0hpxLwYNriTAETiWv19Ke2mio3ObyfNkJu8uEyxlos6-CpnpQtVZ-dML57iFg8niHRESvgb3sEpep1EY76wBONwFLN-2SH_1_PkLnwe2uwFgexbC5UuwdGcJEDrP-bhTHKQfgLx_BJ7aTWAP8tszQSKxTQP-h0sCv28wAITII0CISB45rliYkKU6jV_mwOvT1JNMtPklb_PW_GyH8VXrppsbMND3vSmVkmVunlV14JZyVZ1m6X-SNdVuqBRFWLxVe6_7Bm90WyA!/dl5/d5/L2dBISEvZ0FBIS9nQSEh.

⁹⁴⁸ Bijun Wang, Huiyao Wang, *Chinese Manufacturing Firms’ Overseas Direct Investment (ODI): Patterns, Motivations and Challenges*, in *RIISING CHINA: CHALLENGES AND OPPORTUNITIES* 100 (Jane Golley and Ligang Song ed. 2011), available at <https://ssrn.com/abstract=1907170>, 105.

⁹⁴⁹ Bijun Wang, Huiyao Wang, *Chinese Manufacturing Firms’ Overseas Direct Investment (ODI): Patterns, Motivations and Challenges*, in *RIISING CHINA: CHALLENGES AND OPPORTUNITIES* 107 (Jane Golley and Ligang Song ed. 2011).

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and administrative approval regime imposes substantially more restrictive requirements than the United States. U.S. firms face numerous barriers, such as sectoral restrictions, joint venture requirements, equity caps, and technology transfer requirements when they seek to access to the Chinese market. Chinese firms do not face anything remotely approaching these types of restrictions when investing in the United States.

Indeed, China's state-directed outbound investment regime works in tandem with its non-reciprocal treatment of U.S. firms. A recent study notes the following characteristics regarding China's strategic foreign acquisitions:

- To achieve its industrial policy objectives in a sector, China uses sovereign wealth funds and other state-backed actors to obtain foreign knowledge and expertise through foreign acquisitions;
- Foreign companies become more susceptible to Chinese acquisitions because of the difficult investment and market access environment in China; and
- Chinese firms are willing to bear losses in foreign markets both for their investments and sales as a cost of acquiring foreign proprietary technology, in part because the Chinese government will make up a portion of their loss.⁹⁵⁰

Certain participants in our investigation have asserted that Chinese firms invest in the United States based solely on commercial considerations, and that the Chinese government does not intervene in its firms' daily operations.⁹⁵¹ They assert that any technology and other intellectual property transferred during the merger and acquisition process is based on fair valuation and mutual assent of the parties.⁹⁵² Thus, in their view, China's policies and practices are not unreasonable.

These submissions are not persuasive. The above findings – based on a comprehensive assessment of government policies and investment transactions – leave no room for doubt concerning the role of the Chinese government. This is not to suggest that the Chinese government directs and supports every Chinese investment in the United States, but China's intervention has been decisive in transactions involving advanced technology in sectors that the government deems strategic.

The fact that many mergers and acquisition deals result in commercial advantages for the parties, as certain participants claim, does not negate these findings. The existence of possible mutual commercial benefit to the parties does not alter the reality that China directs and supports foreign investment in the United States to achieve industrial policy goals. In fact, China has begun

⁹⁵⁰ *Chinese Investments in the United States: Impacts and Issues for Policymakers: Hearing Before the U.S.-China Econ. & Sec. Rev. Comm'n*, 115th Cong. 111 (2017) (statement of Robert D. Atkinson).

⁹⁵¹ CGCC, *Submission, Section 301 Hearing 15* (Sep 28, 2017).

⁹⁵² CGCC, *Submission, Section 301 Hearing 15* (Sep 28, 2017).

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limiting “irrational” overseas investment to encourage outbound investment that “enhances China’s technical standards, research and development.”⁹⁵³

In sum, as one participant in the investigation has observed:

No one can object to a country trying to increase its innovative capabilities or research productivity, but it is the methods China uses that are a problem....China aggressively pursues illicit technology transfer and intervenes to support Chinese firms against foreign competitors. Illicit acquisition of foreign technology has been promoted by the government policy since China opened its economy. The greater concern is that long standing Chinese practices on technology acquisition are now married to an aggressive, well-funded industrial policy.⁹⁵⁴

E. China’s Acts, Policies, and Practices Burden U.S. Commerce

To be actionable, the unreasonable act, policy, or practice of a foreign country must burden or restrict U.S. commerce.⁹⁵⁵ The acts, policies, and practices identified above burden U.S. commerce.

Under market conditions, FDI in the United States, including investment from China, benefits the U.S. economy. In the high-tech sector, FDI plays a critical role in the industry’s growth, supports employment, and makes a significant contribution to research and development spending, exports, and value-added activities.⁹⁵⁶ With respect to employment, one commentator notes that Chinese-owned firms in the United States have actually “ramped up local spending and employment because they benefit from abundant U.S. high-tech talent, clustering effects, freedom to innovate and the rule of law driving the American innovation environment.”⁹⁵⁷

However, such benefits must be considered in the broader context of U.S. competitiveness in the global economy. As a general matter, FDI does not benefit the U.S. economy to the extent that it is directed to serve the Chinese government’s industrial policy objectives – specifically, to acquire technology and build national champions within China – and is fueled by financial support not available in the private market.

Here, the Chinese government has directed and supported the acquisition of key U.S. companies and assets to promote technology transfer, in pursuit of both military and economic objectives. These acts, policies, and practices burden U.S. commerce in three ways.

First, China’s acts, policies, and practices threaten the competitiveness of U.S. industry, especially in the sectors deemed important in China’s industrial policy. As discussed in Section IV.B, China seeks to use foreign acquisitions and investments to upgrade its domestic industries

⁹⁵³ WILEY REIN, *Submission, Section 301 Hearing 4* (Sep 28, 2017) (quoting *China Codifies Crackdown on ‘Irrational’ Outbound Investment*, BLOOMBERG (Aug. 18, 2017)).

⁹⁵⁴ James Lewis, CSIS, *Submission, Section 301 Hearing 5* (Sept. 27, 2017).

⁹⁵⁵ 19 U.S.C. §2411(b)(1).

⁹⁵⁶ See *High-Tech Industries: The Role of FDI in Driving Innovation and Growth 2017*, SELECTUSA, available at https://www.selectusa.gov/servlet/servlet.FileDownload?file=015t0000000U1eE_

⁹⁵⁷ RHODIUM, *Submission, Section 301 Hearing 5* (Sep 28, 2017).

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and, ultimately, degrade, reduce, or replace U.S. competition in key sectors. These key sectors include the aviation, integrated circuits (IC), information technology (IT), biotechnology, industrial machinery and robotics, renewable energy, and automotive industries. Subsidies and other government policies and practices supporting Chinese outbound investment give Chinese firms an unfair advantage in acquiring technology assets abroad, which undermines U.S. firms' ability to compete in the global marketplace on a level playing field.

As a direct consequence of the Chinese government's unfair and market-distorting action, Chinese firms are expected to gain increased market share in these industries at the expense of U.S. firms, whose market share will decline in both U.S. and global markets.⁹⁵⁸ The loss of market share could also force U.S. firms to shift their research and development programs, and other investment programs, into areas that may be less profitable and dynamic, which further erodes their long-term competitiveness. Moreover, the unprecedented scale of Chinese OFDI support policies suggest that Chinese firms will be able to gain significant market share at the expense of U.S. firms, threatening U.S. competitiveness in these high-technology industries.

In the IC sector, for example, China's National IC Fund has been used to support numerous technology-related outbound investments in the United States. The President's Council of Advisors on Science and Technology concluded that the "concerted push by China to reshape the market in its favor, using industrial policies backed by over one hundred billion dollars in government-directed funds, threatens the competitiveness of U.S. industry and the national and global benefits it brings."⁹⁵⁹ Furthermore, if strategic foreign acquisitions lead to a dominant Chinese domestic semiconductor industry, downstream industries may do less business with U.S. firms, making it more difficult for them to survive over time. Indeed, the Mercator Institute assesses that "if Chinese enterprises prove capable of using this technology effectively, a hollowing out the technology leadership of industrial countries in pillar industries is possible."⁹⁶⁰

Second, China's acts, policies, and practices undermine the ability of U.S. firms to sustain innovation. In true market competition, foreign firms may often spur innovation and productivity spillovers to local economies when they bring technology and knowledge with them.⁹⁶¹ In this case, however, that does not appear to be happening. Unlike companies in prior waves of OFDI to the United States, "virtually all Chinese firms are less productive than their U.S. counterpart."⁹⁶² Chinese firms invest in the United States to learn from U.S. firms, not the

⁹⁵⁸ See Ryan Morgan, *Two Sessions: Made in China 2025*, APCO Forum (Mar. 26, 2017) ("Businesses in China are not only facing competition from domestic firms that are slowly catching up, but also face the risk of Chinese firms acquiring their international competitor. A business that becomes Chinese through acquisition can then receive government support and other domestic advantages, potentially putting their foreign business competition at an immediate and severe competitive disadvantage both domestically and globally.")

⁹⁵⁹ Wayne M. Morrison, CONG. RESEARCH. SERV., RL 33536, CHINA-U.S. TRADE ISSUES 65 (2017) (emphasis added).

⁹⁶⁰ Jost Wübbeke, et. al., MERICS, MADE IN CHINA 2025: THE MAKING OF A HIGH-TECH SUPERPOWER AND CONSEQUENCES FOR INDUSTRIAL COUNTRIES 54 (Dec. 2016).

⁹⁶¹ *Chinese Investments in the United States: Impacts and Issues for Policymakers: Hearing Before the U.S.-China Econ. & Sec. Rev. Comm'n*, 115th Cong. 13 (2017) (statement of Robert D. Atkinson).

⁹⁶² *Chinese Investments in the United States: Impacts and Issues for Policymakers: Hearing Before the U.S.-China Econ. & Sec. Rev. Comm'n*, 115th Cong. 13 (2017) (statement of Robert D. Atkinson).

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other way around.⁹⁶³ This policy harms innovation by essentially transferring technologies from efficient and productive firms in the United States to less innovative and less productive firms in China. Such a policy, combined with government intervention and support in China, damages U.S. companies and harms global welfare.⁹⁶⁴

Third, China's acts, policies, and practices distort pricing with respect to investments in the critical market for IP-intensive sectors. As outlined above, the Chinese government provides extensive support to its firms in connection with foreign acquisitions. This support places U.S. competitors at a disadvantage by artificially inflating the prices of potential acquisition targets.⁹⁶⁵ In other words, critical assets are not being sold and priced under true market conditions – a fact that threatens to distort the entire IP market. The result is that China is “exporting” its market-distorting policies to the United States and the world in critical high-technology industries.

Unlike China, the United States does not have a broad-based industrial policy through which the government directs and supports foreign investment by firms. Thus, U.S. technology enterprises are at a distinct competitive disadvantage, since they are forced to compete with the extensive support and intervention of the Chinese state.⁹⁶⁶

⁹⁶³ *Chinese Investments in the United States: Impacts and Issues for Policymakers: Hearing Before the U.S.-China Econ. & Sec. Rev. Comm'n*, 115th Cong. 13 (2017) (statement of Robert D. Atkinson).

⁹⁶⁴ Lee Branstetter, *Submission, Section 301 Hearing 3* (Sept. 28, 2017).

⁹⁶⁵ WILEY REIN, *Submission, Section 301 Hearing 5* (Sep 28, 2017).

⁹⁶⁶ WILEY REIN, *Submission, Section 301 Hearing 5* (Sep 28, 2017).

V. Unauthorized Intrusions into U.S. Commercial Computer Networks and Cyber-Enabled Theft of Intellectual Property and Sensitive Commercial Information

A. Introduction

For over a decade, the Chinese government has conducted and supported cyber intrusions into U.S. commercial networks targeting confidential business information held by U.S. firms. Through these cyber intrusions, China's government has gained unauthorized access to a wide range of commercially-valuable business information, including trade secrets, technical data, negotiating positions, and sensitive and proprietary internal communications. These acts, policies, or practices by the Chinese government are unreasonable or discriminatory and burden or restrict U.S. commerce.

Section V.B of this report will first detail the cyber actions taken by the Chinese government against U.S. companies including the theft of confidential business information that would have provided a competitive economic advantage. Section V.B will then analyze how the Chinese government's cyber intrusions support its industrial policy goals and how this activity has continued in recent years. Section V.C concludes that China's actions are unreasonable and Section V.D explains the economic burden on and harm felt by targeted U.S. companies.

Experts have acknowledged that China's cyber activities represent a grave threat to U.S. competitiveness and the U.S. economy. Starting in 2008, experts expressed concern that China's cyber intrusions were becoming more frequent, more targeted, and more sophisticated.⁹⁶⁷ As one expert has noted, "[w]hereas before the activities were targeted at government and military networks..., the new intrusions went beyond state-on-state espionage to threaten American technological competitiveness and economic prosperity."⁹⁶⁸ The Office of the National Counterintelligence Executive added in 2011 that "Chinese actors are the world's most active and persistent perpetrators of economic espionage."⁹⁶⁹

As discussed in more detail below, evidence from U.S. law enforcement and private sources indicates that the Chinese government has used cyber intrusions to serve its strategic economic objectives. Documented incidents of China's cyber intrusions against U.S. commercial entities align closely with China's industrial policy objectives. As the global economy has increased its dependence on information systems in recent years, cyber theft became one of China's preferred methods of collecting commercial information because of its logistical advantages and plausible deniability.⁹⁷⁰

⁹⁶⁷ See e.g., Shane Harris, *China's Cyber Militia*, NAT'L J., May 31, 2008. (citing remarks of a senior official from the U.S. Director of National Intelligence).

⁹⁶⁸ HANNAS, ET AL., CHINESE INDUSTRIAL ESPIONAGE: TECHNOLOGY ACQUISITION AND MILITARY MODERNIZATION, 217 (2013).

⁹⁶⁹ OFFICE OF THE NATIONAL COUNTERINTELLIGENCE EXECUTIVE, FOREIGN SPIES STEALING US ECONOMIC SECRETS IN CYBERSPACE: REPORT TO CONGRESS ON FOREIGN ECONOMIC COLLECTION AND INDUSTRIAL ESPIONAGE, 2009-2011 i (Oct. 2011).

⁹⁷⁰ A number of public submissions provided to USTR state that the Chinese government has no reason to conduct cyber intrusions or commit cyber theft for commercial purposes, see CHINA GENERAL CHAMBER OF COMMERCE [*hereinafter* "CGCC"], *Submission, Section 301 Hearing* 16 (Sept. 28, 2017); that the US has not provided evidence of such actions by China, that China is also a target of cyberattacks, and that the two countries should work together

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The Chinese and American presidents reached a commitment on refraining from the cyber-enabled theft of intellectual property (IP) and other confidential business information for commercial advantage in September 2015.⁹⁷¹ The United States has been closely monitoring China's cyber activities and the evidence indicates that China continues its policy and practice, spanning more than a decade, of using cyber intrusions to target U.S. firms to access their sensitive commercial information and trade secrets. For example, as described in more detail below, in September 2017 the U.S. Department of Justice filed an indictment against Chinese nationals for intruding into U.S. commercial networks and stealing commercially sensitive information. Cybersecurity firms have linked the firm for which these individuals worked to the Chinese government.⁹⁷²

Because cyber intrusions depend on deception and obfuscation, the acts, policies, and practices at issue by their nature impair the comprehensive collection and analysis of all relevant information. Businesses are often unaware that their computer networks have been compromised by an infiltration,⁹⁷³ and those that are aware of such intrusions are often apprehensive about sharing publicly the details of any compromise. Accordingly, this report has drawn upon information in the public domain from both private parties and U.S. law enforcement. However, publicly available information necessarily represents only a fraction of all relevant activity.

B. China's Acts, Policies, and Practices Regarding Unauthorized Intrusions into U.S. Commercial Computer Networks and Cyber-Enabled Theft of Intellectual Property and Sensitive Commercial Information

1. The Chinese Government's Extensive Cyber Activities

The Chinese government's cyber intrusions into U.S. firms' networks have been well documented by private cybersecurity companies. For example, McAfee's 2011 *Night Dragon* report documents advanced persistent threat, or APT, activity from China against global oil, energy, and petrochemical companies "targeting and harvesting sensitive competitive proprietary operations and project-financing information with regard to oil and gas field bids and operations."⁹⁷⁴

to address cybersecurity issues. See CHINA CHAMBER OF INTERNATIONAL COMMERCE [*hereinafter* "CCOIC"], *Submission, Section 301 Hearing* 68-70 (Sept. 39, 2017); CHINA CHAMBER OF COMMERCE FOR IMPORT AND EXPORT OF MACHINERY AND ELECTRONIC PRODUCTS [*hereinafter* "CCCME"], *Submission, Section 301 Hearing* 12 (Sept. 27, 2017). The discussion and accompanying references that follow establish a record of China's cyber intrusions and cyber theft. That China may also be a target of cyberattack is outside the scope of this investigation.

⁹⁷¹ Press Release, The White House, Fact Sheet: President Xi Jinping's State Visit to the United States (Sept. 25, 2015).

⁹⁷² INSIKT GROUP, *Recorded Future Research Concludes Chinese Ministry of State Security Behind APT3*, RECORDED FUTURE (May 17, 2017) (last visited Jan. 10, 2018).

⁹⁷³ See VERIZON, 2017 DATA BREACH INVESTIGATIONS REPORT (2017).

⁹⁷⁴ MCAFEE FOUNDSTONE PROFESSIONAL SERVICES & MCAFEE LABS, GLOBAL ENERGY CYBER ATTACKS: "NIGHT DRAGON" 3 (Feb. 10, 2011).

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Verizon's 2013 *Data Breach Investigations Report* concluded that "State-affiliated actors tied to China are the biggest mover in 2012. Their efforts to steal IP comprise about one-fifth of all breaches in this dataset."⁹⁷⁵ Moreover, 95% of the espionage cases⁹⁷⁶ in the dataset were attributed to threat actors in China, which "may mean that other threat groups perform their activities with greater stealth and subterfuge. But it could also mean that China is, in fact, the most active source of national and industrial espionage in the world today."⁹⁷⁷

In 2013, the cybersecurity firm Mandiant released a detailed report connecting the theft of hundreds of terabytes of data by China's People's Liberation Army (PLA) General Staff Department, Third Department (3PLA), Second Bureau—a signals intelligence component of the PLA, known by its Military Unit Cover Designation as Unit 61398⁹⁷⁸ and referred to by Mandiant as "Advanced Persistent Threat 1" or "APT1."⁹⁷⁹ At the time of the report, Mandiant estimated that Unit 61398 was "staffed by hundreds, and perhaps thousands of people based on the size of Unit 61398's physical infrastructure."⁹⁸⁰ The report includes details on more than 3,000 indicators associated with APT1 and Mandiant's attribution of the cyber incidents to the 3PLA.⁹⁸¹

⁹⁷⁵ VERIZON, 2013 DATA BREACH INVESTIGATIONS REPORT 5 (2013) ("State-affiliated actors tied to China are the biggest mover in 2012. Their efforts to steal IP comprise about one-fifth of all breaches in this dataset.").

⁹⁷⁶ The report defined this as "state-sponsored or affiliated actors seeking classified information, trade secrets, and intellectual property in order to gain national, strategic, or competitive advantage". VERIZON, 2013 DATA BREACH INVESTIGATIONS REPORT 11 (2013).

⁹⁷⁷ VERIZON, 2013 DATA BREACH INVESTIGATIONS REPORT 21 (2013).

⁹⁷⁸ MANDIANT, APT1: EXPOSING ONE OF CHINA'S CYBER ESPIONAGE UNITS 3 (2013); *see also* Mark Stokes, PROJECT 2049 INSTITUTE, THE PLA GENERAL STAFF DEPARTMENT THIRD DEPARTMENT SECOND BUREAU: AN ORGANIZATIONAL OVERVIEW OF UNIT 61398, 3-4 (July 27, 2015) ("Signals intelligence (SIGINT), or technical reconnaissance in PLA lexicon, advances the interests of the Chinese Communist Party (CCP) and the People's Republic of China (PRC). The PLA's SIGINT community consists of at least 28 technical reconnaissance bureaus (TRBs)... The Second Bureau (Unit 61398) is one of the largest among the 12 operational bureaus that comprise the GSD Third Department.").

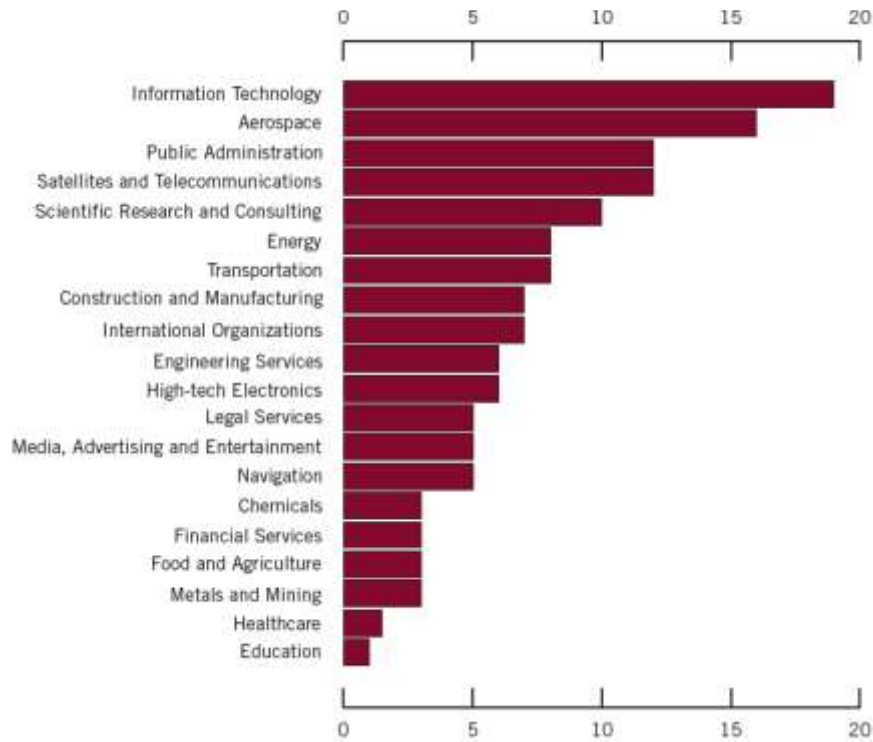
⁹⁷⁹ An "APT" or "Advanced Persistent Threat" uses multiple phases to break into a computer network, avoid detection, and harvest valuable information over the long term. *Advanced Persistent Threats: How They Work*, SYMANTEC, <https://www.symantec.com/theme.jsp?themeid=apt-infographic-1> (last visited Jan. 10, 2018).

⁹⁸⁰ MANDIANT, APT1: EXPOSING ONE OF CHINA'S CYBER ESPIONAGE UNITS 3 (2013).

⁹⁸¹ MANDIANT, APT1: EXPOSING ONE OF CHINA'S CYBER ESPIONAGE UNITS 5 (2013).

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According to Mandiant, this unit of the 3PLA stole data from at least 141 organizations, 115 of which are based in the United States, representing 20 major business sectors. The victims of these intrusions match industries that China has identified as strategic priorities, including four of the seven “strategic emerging industries” that China identified in its 12th Five-year Plan.⁹⁸² The table below illustrates the number of 3PLA victims by sector in Mandiant’s data set.



Source: MANDIANT APT1: EXPOSING ONE OF CHINA’S CYBER ESPIONAGE UNITS

Mandiant identified a wide range of commercial sector targets of 3PLA, including information technology, energy, financial services, food and agriculture, metals and mining, electronics, and chemicals. According to the report, 3PLA has stolen a wide range of sensitive commercial information from these victims including:

- product development and use, including information on test results, system designs, product manuals, parts lists, and simulation technologies;
- manufacturing procedures, such as descriptions of proprietary processes, standards, and waste management processes;
- business plans, such as information on contract negotiation positions and product pricing, legal events, mergers, joint ventures, and acquisitions;
- policy positions and analysis, such as white papers, and agendas and minutes from meetings involving high ranking personnel;
- e-mails of high-ranking employees; and

⁹⁸² MANDIANT, APT1: EXPOSING ONE OF CHINA’S CYBER ESPIONAGE UNITS 3, 24 (2013).

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- user credentials and network architecture information.⁹⁸³

The Mandiant report suggests that a reasonable inference from the evidence it has collected is that intrusions conducted by this unit of the 3PLA supported commercial interests in China. For example, the report points to a company involved in a wholesale industry whose network was compromised by 3PLA for over two and half years. During this time, 3PLA reportedly stole countless files from the victim.⁹⁸⁴ According to the report, the 3PLA unit repeatedly accessed the e-mail accounts of several executives, including the CEO and General Counsel.⁹⁸⁵ The Mandiant report states that at the same time as these intrusions were occurring:

[M]ajor news organizations reported that China had successfully negotiated a double-digit decrease in price per unit with the victim organization for one of its major commodities. This may be coincidental; however, it would be surprising if APT1 could continue perpetrating such a broad mandate of cyber espionage and data theft if the results of the group's efforts were not finding their way into the hands of entities able to capitalize on them."⁹⁸⁶

2. **The United States Department of Justice Indicted Chinese Government Hackers in May 2014**

In May 2014, the United States Department of Justice (DOJ) announced an indictment against five 3PLA officers for cyber intrusions and economic espionage directed against U.S. firms.⁹⁸⁷ These five officers were assigned to 3PLA's Second Bureau, Unit 61398, which Mandiant had identified as APT1 the year prior.⁹⁸⁸ The 3PLA officers were charged with cyber intrusions into the computer networks of six U.S. victims: Westinghouse Electric Company (Westinghouse), SolarWorld Americas, Inc. (SolarWorld), United States Steel Corporation (U.S. Steel), Allegheny Technologies, Inc. (ATI), Alcoa Inc. (Alcoa), and the United Steel, Paper and Forestry, Rubber, Manufacturing, Energy, Allied Industrial and Services Workers International Union (USW).⁹⁸⁹

The intrusions by the 3PLA were conducted at times when each of the victims had a significant business relationship or business issue with China.⁹⁹⁰ In addition, each of the victims operate in a sector that the Chinese government has prioritized for development.⁹⁹¹ The indictment alleges

⁹⁸³ MANDIANT, APT1: EXPOSING ONE OF CHINA'S CYBER ESPIONAGE UNITS 25 (2013).

⁹⁸⁴ MANDIANT, APT1: EXPOSING ONE OF CHINA'S CYBER ESPIONAGE UNITS 25 (2013).

⁹⁸⁵ MANDIANT, APT1: EXPOSING ONE OF CHINA'S CYBER ESPIONAGE UNITS 25 (2013).

⁹⁸⁶ MANDIANT, APT1: EXPOSING ONE OF CHINA'S CYBER ESPIONAGE UNITS 25 (2013).

⁹⁸⁷ U.S. v. Wang Dong et al., (W. D. Pa. May 1, 2014) (Crim. No. 14-118 W.D.Pa.); *see also* Mark Stokes, PROJECT 2049 INSTITUTE, THE PLA GENERAL STAFF DEPARTMENT THIRD DEPARTMENT SECOND BUREAU: AN ORGANIZATIONAL OVERVIEW OF UNIT 61398, 3 (July 27, 2015).

⁹⁸⁸ *See* Mark Stokes, PROJECT 2049 INSTITUTE, THE PLA GENERAL STAFF DEPARTMENT THIRD DEPARTMENT SECOND BUREAU: AN ORGANIZATIONAL OVERVIEW OF UNIT 61398 (July 27, 2015); *see also* MANDIANT, APT1: EXPOSING ONE OF CHINA'S CYBER ESPIONAGE UNITS 3 (2013).

⁹⁸⁹ U.S. v. Wang Dong et al., 4-8 (W. D. Pa. May 1, 2014).

⁹⁹⁰ U.S. v. Wang Dong et al., 13-26 (W. D. Pa. May 1, 2014).

⁹⁹¹ *See e.g.*, *The Plan for the Adjustment and Revitalization of the Steel Industry* (State Council, published Mar. 20, 2009); *12th Five-year Steel Industry Development Plan* (MIIT, Gong Xin Bu Gui [2011] No. 480, issued Oct. 24,

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that “the defendants conspired to hack into American entities, to maintain unauthorized access to their computers and to steal information from those entities that would be useful to their competitors in China, including state-owned enterprises (SOEs).”⁹⁹² In some cases, the indictment alleges that the defendants stole trade secrets that “would have been particularly beneficial to Chinese companies at the time they were stolen.”⁹⁹³ In other cases, the indictment alleges that the defendants “stole sensitive, internal communications that would provide a competitor, or an adversary in litigation, with insight into the strategy and vulnerabilities of the American entity.”⁹⁹⁴ Meanwhile, during the period relevant to the cyber intrusions, the indictment states:

Chinese firms hired the same PLA Unit where the defendants worked to provide information technology services. For example, one SOE involved in trade litigation against some of the American victims mentioned herein hired the Unit, and one of the co-conspirators charged herein, to build a ‘secret’ database designed to hold corporate ‘intelligence’.⁹⁹⁵

a) *SolarWorld*

The indictment alleges that in 2012, while SolarWorld was litigating a petition it had filed against solar imports from China, the 3PLA stole thousands of sensitive files from SolarWorld. According to the indictment, these files included:

(1) cash-flow spreadsheets maintained by the Chief Financial Officer that would enable a Chinese competitor to identify the length of time that SolarWorld might survive a financial or market shock; (2) detailed manufacturing metrics, technological innovations, and production line information that would enable a Chinese competitor to mimic SolarWorld’s proprietary production capabilities without the need to invest time or money in research and development; (3) specific production costs for all manufacturing inputs that would enable a Chinese competitor to undermine SolarWorld financially through targeted and sustained underpricing of solar products; and (4) privileged attorney-client communications related to SolarWorld’s ongoing trade litigation with

2011); *12th Five-year Solar Power Development Plan*, (NEA, Guo Neng Xin Neng [2012] No. 194, issued July 7, 2012); *Medium-Long Term Nuclear Power Development Plan* (NDRC, issued Oct. 2007).

⁹⁹² Press Release, Department of Justice, U.S. Charges Five Chinese Military Hackers for Cyber Espionage Against U.S. Corporations and a Labor Organization for Commercial Advantage (May 19, 2014), *available at* <https://www.justice.gov/opa/pr/us-charges-five-chinese-military-hackers-cyber-espionage-against-us-corporations-and-labor>.

⁹⁹³ Press Release, Department of Justice, U.S. Charges Five Chinese Military Hackers for Cyber Espionage Against U.S. Corporations and a Labor Organization for Commercial Advantage (May 19, 2014), *available at* <https://www.justice.gov/opa/pr/us-charges-five-chinese-military-hackers-cyber-espionage-against-us-corporations-and-labor>.

⁹⁹⁴ Press Release, Department of Justice, U.S. Charges Five Chinese Military Hackers for Cyber Espionage Against U.S. Corporations and a Labor Organization for Commercial Advantage (May 19, 2014), *available at* <https://www.justice.gov/opa/pr/us-charges-five-chinese-military-hackers-cyber-espionage-against-us-corporations-and-labor>.

⁹⁹⁵ U.S. v. Wang Dong et al., 3 (W. D. Pa. May 1, 2014).

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China, including confidential Question and Answer documents submitted to the Department of Commerce that were not discoverable by the Chinese respondents.⁹⁹⁶

According to DOJ, “such information would have enabled a Chinese competitor to target SolarWorld’s business operations aggressively from a variety of angles.”⁹⁹⁷

The indictment alleges that data were stolen from SolarWorld on at least twelve occasions, including during the following the incidents:

- On May 3 and May 9, 2012, the 3PLA stole files and e-mails from SolarWorld employees, including three senior SolarWorld executives.⁹⁹⁸ The May 3 cyber intrusion occurred one day after the Coalition for American Solar Manufacturing led by SolarWorld issued a public analysis criticizing China’s new Five-year Plan for Solar Photovoltaic Industry⁹⁹⁹ and about two weeks before the U.S. Department of Commerce announced its preliminary determination in a trade complaint SolarWorld had filed against Chinese producers of solar cells.¹⁰⁰⁰
- On July 27, 2012, the 3PLA stole e-mails and files belonging to five employees,¹⁰⁰¹ just two days after SolarWorld’s parent company filed a trade complaint with the European Commission against Chinese producers of solar modules and components.¹⁰⁰²
- Between May 9 and September 26, 2012, the 3PLA conducted at least twelve more intrusions into and exfiltrations from SolarWorld’s computers.¹⁰⁰³ The intrusion on September 26, 2012 occurred on the same day that SolarWorld filed a second trade complaint against Chinese solar products with the European

⁹⁹⁶ U.S. v. Wang Dong et al., 18 (W. D. Pa. May 1, 2014).

⁹⁹⁷ Press Release, Department of Justice, U.S. Charges Five Chinese Military Hackers for Cyber Espionage Against U.S. Corporations and a Labor Organization for Commercial Advantage (May 19, 2014), *available at* <https://www.justice.gov/opa/pr/us-charges-five-chinese-military-hackers-cyber-espionage-against-us-corporations-and-labor>.

⁹⁹⁸ U.S. v. Wang Dong et al., 17, 34, 35 (W. D. Pa. May 1, 2014).

⁹⁹⁹ COALITION FOR AMERICAN SOLAR MANUFACTURING, ANALYSIS: CHINA'S NEW FIVE-YEAR PLAN FOR SOLAR CALLS FOR ESCALATION IN GOVERNMENT SPONSORSHIP OF EXPORT-INTENSIVE, PRICE-SUBSIDIZED TRADE (May 2, 2012), *available at* <http://www.americansolarmanufacturing.org/news-releases/05-02-12-chinas-five-year-plan.htm>.

¹⁰⁰⁰ U.S. v. Wang Dong et al., 17 (W. D. Pa. May 1, 2014).

¹⁰⁰¹ U.S. v. Wang Dong et al., 35 (W. D. Pa. May 1, 2014).

¹⁰⁰² EU ProSun filed an anti-dumping complaint against certain photovoltaic products from China on July 25, 2012 with the European Commission. *See* European Commission, Notice of initiation of an anti-dumping proceeding concerning imports of crystalline silicon photovoltaic modules and key components (i.e. cells and wafers) originating in the People’s Republic of China, 2012/C 269/04 (Sept. 9, 2012)

¹⁰⁰³ Fact Sheet, International Trade Administration, Department of Commerce, Commerce Finds Dumping and Subsidization of Crystalline Silicon Photovoltaic Cells, Whether or Not Assembled into Modules from the People’s Republic of China (2012), *available at* http://ia.ita.doc.gov/download/factsheets/factsheet_pre-solar-cells-ad-cvd-finals-20121010.pdf.

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Commission,¹⁰⁰⁴ about one week before SolarWorld testified to the U.S. International Trade Commission about the harm caused by certain Chinese solar products,¹⁰⁰⁵ and two weeks before the U.S. Department of Commerce announced its final affirmative determination in its trade complaint against Chinese producers of solar cells.¹⁰⁰⁶

As described more below in Part D, SolarWorld testified that these intrusions have resulted in significant harm to its business, including the loss of a competitive advantage and a loss of a return on its significant investment in a new solar technology.¹⁰⁰⁷

b) *U.S. Steel*

According to the indictment, between February 8 and 23, 2010, 3PLA actors sent spearphishing e-mails with malware to U.S. Steel employees to gain unauthorized access to its network.¹⁰⁰⁸ On February 26, 2010, a 3PLA actor accessed at least one U.S. Steel computer and stole computer hostnames and descriptions for more than 1,700 U.S. Steel computers, including servers used for network security, applications for U.S. Steel employees' mobile devices, and physical access to U.S. Steel's facilities.¹⁰⁰⁹ The 3PLA actor then took steps to identify and exploit vulnerable servers on that list.¹⁰¹⁰ In February 2010, at the same time as these cyber intrusions were occurring, U.S. Steel was a petitioner in two trade remedy investigations in the United States against imported steel products from China.¹⁰¹¹ The Chinese respondents named in these two

¹⁰⁰⁴ EU ProSun filed an anti-subsidies complaint against certain photovoltaic products from China on September 26, 2012 with the European Commission. See European Commission, *Notice of initiation of an anti-subsidy proceeding concerning imports of crystalline silicon photovoltaic modules and key components (i.e. cells and wafers), originating in the People's Republic of China*, 2012/C 340/06 (Nov. 8, 2012).

¹⁰⁰⁵ On October 3, 2012, the U.S. International Trade Commission held a hearing on the matter of certain photovoltaic products from China. See USITC, Inv. Nos. 701-TA-481 and 731-TA-1190, "Key Dates", available at https://www.usitc.gov/investigations/701731/2012/crystalline_silicon_photovoltaic_cells_and_modules/final.htm

¹⁰⁰⁶ On October 10, 2012, the U.S. Department of Commerce announced its affirmative final determinations in the antidumping and countervailing duty investigations of imports of certain photovoltaic cells from China. See Fact Sheet, INTERNATIONAL TRADE ADMINISTRATION, DEPARTMENT OF COMMERCE, *Commerce Finds Dumping and Subsidization of Crystalline Silicon Photovoltaic Cells, Whether or Not Assembled into Modules from the People's Republic of China* (2012).

¹⁰⁰⁷ Juergen Stein, SOLARWORLD AMERICAS INC. [*hereinafter* "SolarWorld"], *Testimony, Section 301 Hearing* 76 (Oct. 10, 2017).

¹⁰⁰⁸ U.S. v. Wang Dong et al., 20 (W. D. Pa. May 1, 2014). "In a spear-phishing attack, a target recipient is lured to either download a seemingly harmless file attachment or to click a link to a malware- or an exploit-laden site. The file, often a vulnerability exploit, installs a malware in a compromised computer. The malware then accesses a malicious command-and-control (C&C) server to await instructions from a remote user. At the same time, it usually drops a decoy document that will open when the malware or exploit runs to hide malicious activity." TREND MICRO INC., SPEAR-PHISHING EMAIL: MOST FAVORED APT ATTACK BAIT, RESEARCH PAPER 2012 (2012), available at <http://www.trendmicro.com/cloud-content/us/pdfs/security-intelligence/white-papers/wp-spear-phishing-email-most-favored-apt-attack-bait.pdf>.

¹⁰⁰⁹ U.S. v. Wang Dong et al., 21 (W. D. Pa. May 1, 2014).

¹⁰¹⁰ U.S. v. Wang Dong et al., 21 (W. D. Pa. May 1, 2014).

¹⁰¹¹ These two cases involved oil country tubular goods (OCTG), which are steel piping used by oil and gas companies and seamless standard line pipes (SSLP), which are steel pipes specifically constructed without a welded seam down the length of the pipes. See Department of Commerce, ITA Case No. A-570-943, A-570-956, and C-570-957.

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investigations include the operating companies of several Chinese SOEs, including the Baosteel Group.¹⁰¹²

In U.S. Steel's submission to USTR in connection with this investigation, U.S. Steel explains that the second hack "resulted in the exfiltration of highly sensitive commercial secrets regarding [its] development of lightweight, high-strength steel."¹⁰¹³ U.S. Steel responded by filing claims under Section 337 of the Trade Act before the U.S. International Trade Commission (USITC) against Baosteel, which it claims "was known to be one of the beneficiaries of China's state-sponsored cyber-attacks."¹⁰¹⁴

c) *ATI*

According to the indictment, on April 13, 2012, the 3PLA actors stole usernames and passwords for thousands of ATI employees.¹⁰¹⁵ The stolen network credentials would have provided wide-ranging access to the company's computers and sensitive information.¹⁰¹⁶ In 2012, ATI was engaged in a joint venture with Baosteel in Shanghai, which manufactures precision rolled stainless steel strips.¹⁰¹⁷ On April 12, 2012, one day before the 3PLA exfiltrated these credentials, ATI officials met with officials from Baosteel in Shanghai for a board meeting¹⁰¹⁸ related to their joint venture.

d) *United Steel Workers (USW)*

According to the indictment, the 3PLA stole sensitive information from USW computer networks on two separate occasions.¹⁰¹⁹

The indictment alleges that in January 2012, at the same time that USW was preparing a public campaign to counter what it viewed as a wide array of unfair Chinese government policies, 3PLA stole sensitive information from USW computer networks.¹⁰²⁰ On January 31, 2012, USW issued a statement from its International President, calling on the U.S. Government to take action to protect the U.S. automobile and auto parts industry from "China's predatory, protectionist and

¹⁰¹² Baosteel Group (now known as Baowu Steel) is a state-owned enterprise wholly-owned by China's State-owned Assets Supervision and Administration of Commission. See SASAC website for the full list, available at <http://www.sasac.gov.cn/n2588035/n2641579/n2641645/index.html> (last visited Jan. 23, 2018).

¹⁰¹³ U.S. STEEL CORPORATION, *Submission, Section 301 Hearing* (Sept. 28, 2017).

¹⁰¹⁴ U.S. STEEL CORPORATION, *Submission, Section 301 Hearing* (Sept. 28, 2017).

¹⁰¹⁵ U.S. v. Wang Dong et al., 22-3 (W. D. Pa. May 1, 2014).

¹⁰¹⁶ U.S. v. Wang Dong et al., 21-3 (W. D. Pa. May 1, 2014).

¹⁰¹⁷ See *Global Joint Ventures – Shanghai STAL Precision Stainless Steel Co., Ltd (STAL)*, ATI, available at <https://www.atimetals.com/businesses/joint-ventures/Pages/default.aspx>. See also Allegheny Technologies Incorporated, 2012 Form 10-K.

¹⁰¹⁸ U.S. v. Wang Dong et al., 21-3 (W. D. Pa. May 1, 2014). Two months prior to this intrusion, the joint venture announced it was selling off its loss-making stainless steel assets to the Baosteel Group, its parent company for RMB 2.6 billion. The sale of assets to the Baosteel Group was the largest M&A transaction in China announced that month. See BAOSHAN IRON AND STEEL LTD. RELATED PARTY TRANSACTIONS REPORT. Report No. 2012-005, 24 (Feb. 29, 2012); See MIIT, MERGER AND RESTRUCTURING MONTHLY REPORT, VOL. 2, available at <http://merger.miit.gov.cn/observation/briefing/2012-03-23/381.html>.

¹⁰¹⁹ U.S. v. Wang Dong et al., 7 (W. D. Pa. May 1, 2014).

¹⁰²⁰ U.S. v. Wang Dong et al., 23 (W. D. Pa. May 1, 2014)

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illegal trade practices.”¹⁰²¹ USW through its trade counsel also released a report on Chinese auto policies that threaten the U.S. jobs in the auto industry on January 31, 2012.¹⁰²² Meanwhile, on the same day, the 3PLA gained unauthorized access to USW computers, and stole e-mails from six senior USW employees, including USW’s International President, most of whom were personally and publicly involved in formulating USW strategy towards combatting China’s trade practices in this sector.¹⁰²³

On March 7, 2012, 3PLA actors again gained unauthorized access to USW employees’ e-mails¹⁰²⁴ at a critical period for USW as it was considering whether to request an extension of tariffs imposed on Chinese tires that would expire in September 2012.¹⁰²⁵ USW announced in September 2012 that it would not seek an extension of the tariffs, but revealed in its September announcement that it had notified the Administration in March that it would not seek an extension.¹⁰²⁶ The 3PLA stole e-mails from the inboxes of six senior employees that included sensitive, non-public, and deliberative information about USW trade strategy, including its decision not to seek an extension of the tariffs, which would not be announced publicly for another six months.¹⁰²⁷

e) *Westinghouse*

Westinghouse was affected by four major cyber intrusions by the 3PLA – one occurring in May 2010, one in late December 2010, and two in early January 2011.¹⁰²⁸ According to the indictment, the PLA obtained at least 1.4 gigabytes of data, the equivalent of roughly 700,000 pages of e-mail messages and attachments from Westinghouse’s computers,¹⁰²⁹ including: trade secrets; technical and design specifications; network credentials; and, sensitive e-mails belonging to senior decision-makers.¹⁰³⁰

In 2010, Westinghouse was building four AP1000 power plants in China and negotiating other terms of the construction, including technology transfers, with State Nuclear Power Technology

¹⁰²¹ U.S. v. Wang Dong et al., 24 (W. D. Pa. May 1, 2014)

¹⁰²² See Statement of Terence Stewart, Jan. 31, 2012 available at: <http://assets.usw.org/releases/china-trade/Final-SS-Press-Release.pdf>. See also LAW OFFICES OF STEWART & STEWART, CHINA’S SUPPORT PROGRAMS FOR AUTOMOBILES AND AUTO PARTS UNDER THE 12TH FIVE YEAR PLAN (Jan. 2012).

¹⁰²³ U.S. v. Wang Dong et al., 24-5 (W. D. Pa. May 1, 2014).

¹⁰²⁴ U.S. v. Wang Dong et al., 25 (W. D. Pa. May 1, 2014).

¹⁰²⁵ Imported Chinese tires became subject to a tariff for a period of three years starting on September 26, 2009, after the USW successfully petitioned the USITC for relief. See *Certain Passenger Vehicle and Light Truck Tires from the People’s Republic of China*, Investigation No. TA-421-7, USITC Publication No. 4085.

¹⁰²⁶ USW announced on September 24, 2012 that it would not seek an extension of the tariffs. *USW Acclaim Success of Trade Relief for Tire Sector; Extension Not Requested*, UNITED STEELWORKERS (Sept. 24, 2012), available at: <http://www.usw.org/news/media-center/releases/2012/usw-acclaim-success-of-trade-relief-for-tire-sector-extension-not-requested>. The USW announcement states that it notified the Administration of its decision in March before the renewal request deadline

¹⁰²⁷ U.S. v. Wang Dong et al., 25-6 (W. D. Pa. May 1, 2014).

¹⁰²⁸ U.S. v. Wang Dong et al., 4, 15-6. (W. D. Pa. May 1, 2014).

¹⁰²⁹ U.S. v. Wang Dong et al., 16 (W. D. Pa. May 1, 2014).

¹⁰³⁰ U.S. v. Wang Dong et al., 2, 4, 15-6 (W. D. Pa. May 1, 2014).

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Corporation (SNPTC), a Chinese SOE.¹⁰³¹ At the same time, a 3PLA actor stole confidential and proprietary technical and design specifications for pipes, pipe supports, and pipe routing within the AP1000 plant buildings.¹⁰³² The stolen trade secrets and technical information would permit a competitor to build a power plant without having to invest in associated research and development costs that had been borne by Westinghouse in the past.¹⁰³³

Additionally, in 2010 and 2011, while Westinghouse was exploring other business ventures with SNPTC, a 3PLA actor stole sensitive, non-public, and deliberative e-mails belonging to senior decision-makers responsible for the Westinghouse business relationship with SNPTC.¹⁰³⁴ In January 2011, as the 3PLA were infiltrating Westinghouse's servers and exfiltrating its information, Westinghouse announced the signing of two agreements with SNPTC.¹⁰³⁵

f) *Alcoa*

The indictment alleges that on February 1, 2008, Alcoa announced that it was entering into a partnership with a Chinese SOE, Chinalco to acquire an interest in a foreign mining company.¹⁰³⁶ After the announcement, on February 20, 2008, the 3PLA obtained access to nearly 3,000 Alcoa e-mails through a spearphishing message that installed malware into Alcoa's computer system.¹⁰³⁷ The stolen e-mails included internal discussions among Alcoa's senior managers regarding the acquisition of the foreign mining company.¹⁰³⁸

The facts of each of these incidents provides a chilling warning to U.S. companies that engage or seek to engage in business in China or seek to challenge China's trade practices through legal means. If a company operates in a sector that China deems strategic to its economic interests or particularly if it has business relations with an SOE, the company must risk being targeted by Chinese government hackers for cyber intrusions and cyber theft, putting sensitive commercial information about its products, business strategy, and other matters at risk. These firms are forced to operate on the assumption that they are under constant surveillance by the Chinese government's extensive system of corporate surveillance and control, which is discussed in greater detail in Section VI of this report.¹⁰³⁹

¹⁰³¹ U.S. v. Wang Dong et al., 14 (W. D. Pa. May 1, 2014); *see also* *China signs first engineering contracts for Westinghouse AP1000-derived CAP1400 reactor*, POWER ENGINEERING, Nov. 29, 2010. *Foreign Companies Eyeing Chinese Nuclear Power Market*, SINOCAS, COMTEX NEWS NETWORK, Dec. 2, 2010; *First Concrete Pour for Haiyang Unit 2 Completed in Record Time; 4 AP1000 Units Now Under Construction in China*, PR NEWSWIRE, June 25, 2010.

¹⁰³² U.S. v. Wang Dong et al., 14-5 (W. D. Pa. May 1, 2014).

¹⁰³³ U.S. v. Wang Dong et al., 14-5 (W. D. Pa. May 1, 2014).

¹⁰³⁴ U.S. v. Wang Dong et al., 16 (W. D. Pa. May 1, 2014)

¹⁰³⁵ *Westinghouse, China extend AP1000 reactor agreement*, POWER ENGINEERING, Jan. 20, 2011, *available at* <http://www.power-eng.com/articles/2011/01/westinghouse--china.html>.

¹⁰³⁶ U.S. v. Wang Dong et al., 26 (W. D. Pa. May 1, 2014); *see also* Eric Onstad, Lucy Hornby, *Chinalco and Alcoa buy stake in Rio Tinto*, NY TIMES (Feb. 1, 2008).

¹⁰³⁷ U.S. v. Wang Dong et al., 26-7 (W. D. Pa. May 1, 2014).

¹⁰³⁸ U.S. v. Wang Dong et al., 27 (W. D. Pa. May 1, 2014).

¹⁰³⁹ Andrew Browne, *China's Big Brother Is Watching You Do Business*, WALL STREET J., May 23, 2017.

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3. **China's Institutional Framework Supports Cyber Intrusions into U.S. Commercial Networks**

As discussed in detail in other sections of this report, China relies primarily on a state-led approach to technology development and economic growth.¹⁰⁴⁰ Through an extensive planning system, China identifies certain sectors and technologies for development and fosters national champions to achieve dominance in both domestic and global markets.¹⁰⁴¹ China's industrial plans and innovation goals, such as Made in China 2025,¹⁰⁴² aim to provide support and assistance through the use of state resources to Chinese companies and commercial sectors.¹⁰⁴³ At the same time, China maintains an extensive state sector and uses state-invested enterprises and other mechanisms as instruments to achieve the government's economic objectives.

As noted above in Section IV.B.5, China's policy of "military-civil fusion" calls for the development of integrated information sharing platforms to facilitate science and technology (S&T) resource sharing and collaboration between state laboratories, the PLA, and enterprises.¹⁰⁴⁴ China's government-directed cyber capabilities exist alongside an institutional framework that provides state-invested enterprises and national champions with privileged access to various forms of Chinese government support and information.

Indeed, the U.S. government has evidence that the Chinese government provides competitive intelligence through cyber intrusions to Chinese state-owned enterprises through a process that includes a formal request and feedback loop, as well as a mechanism for information exchange via a classified communication system.

For example, according to U.S. government information, China National Offshore Oil Corporation (CNOOC), a state-owned enterprise, submitted formal requests to Chinese intelligence services seeking intelligence information on several U.S. oil and gas companies and on U.S. shale gas technology. One instance occurred in January 2012 in the context of commercial negotiations between a U.S. company ("U.S. Company 1"), CNOOC, and the PRC Ministry of Agriculture regarding oil leaks that had occurred at a facility jointly owned and operated by U.S. Company 1 and CNOOC in June 2011.

¹⁰⁴⁰ See Section I.C.

¹⁰⁴¹ See Section I.C.

¹⁰⁴² See Section I.C for more information on the Made in China 2025 policy.

¹⁰⁴³ For example, China's Made in China 2025 policy documents set out targets for developing ten key industries. U.S. CHAMBER OF COMMERCE, MADE IN CHINA 2025: GLOBAL AMBITIONS BUILT ON LOCAL PROTECTIONS 17-18 (2017) (stating that the policy "appears to provide preferential access to capital to domestic companies to promote their indigenous [research and development] capabilities, enhance their competitiveness, and support their ability to acquire technology from abroad."). U.S. CHAMBER OF COMMERCE, MADE IN CHINA 2025: GLOBAL AMBITIONS BUILT ON LOCAL PROTECTIONS 6 (2017) ("In concert with the 13th Five-Year Plan, Internet Plus Action Plan, and other state-led development plans, [Made in China 2025] constitutes a broader strategy to use state resources to alter and create comparative advantage in these sectors on a global scale."). EUROPEAN CHAMBER OF COMMERCE IN CHINA, CHINA MANUFACTURING 2025: PUTTING INDUSTRIAL POLICY AHEAD OF MARKET FORCES 1 (2017) (stating that the policy's references to "'indigenous innovation'—along with mentions of the need to realise 'self-sufficiency' . . . suggests that Chinese policies will further skew the competitive landscape in favour of domestic companies.").

¹⁰⁴⁴ See *Description of National New Industrial Demonstration Base*, MIIT, <http://sfjd.miit.gov.cn/BaseInfoAction!findListIndustry.action>

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In January 2012, these Chinese intelligence services provided CNOOC information ahead of and during negotiations with U.S. Company 1. The information that the intelligence services provided to CNOOC included details on U.S. Company 1's position in the negotiation. CNOOC attributed their ultimate success in the negotiation with U.S. Company 1 to the information that CNOOC had received from the intelligence services. According to information the U.S. Government has access to, senior Chinese Intelligence officials, including a PLA director, Liu Xiaobei, endorsed the use of the intelligence information during CNOOC's negotiations with U.S. Company 1.

In a second instance, in July 2012, CNOOC requested that Chinese Intelligence provide specific information on five named U.S. oil and natural gas companies. Specifically, CNOOC sought information on:

- U.S. Company 2's operations, asset management, and the movements of its senior personnel;
- U.S. Company 3's developments in shale gas technology; and
- The status of U.S. Company 4 and U.S. Company 5's research in certain areas, including lab procedures, fracking technology and fracking formulae.

These examples illustrate how China uses the intelligence resources at its disposal to further the commercial interests of Chinese state-owned enterprises to the detriment of their foreign partners and competitors.

Available evidence also indicates that China uses its cyber capabilities as an instrument to achieve its industrial policy and S&T objectives. Indeed, based on available information on China's cyber intrusions, experts have concluded that China's cyber intrusions and cyber theft align with its industrial policy goals.¹⁰⁴⁵ For example:

As noted above, Mandiant observed in its 2013 report that "organizations in all industries related to China's strategic priorities are potential targets of APT1's comprehensive cyber espionage campaign." The victims of the intrusions in Mandiant's data set match

¹⁰⁴⁵ During the hearing for this investigation, Richard Ellings of the Commission on the Theft of American Intellectual Property and the President of the National Bureau of Asian Research, was asked whether there is a correlation between China's industrial plans and reported cyber intrusions directed against U.S. businesses. Mr. Ellings testified in response: "Absolutely. In fact, the whole history of cyber intrusions and more broadly industrial espionage from China correlates with all the Five-year Plans, the Indigenous Innovation Policy that came out 10 years ago, 12 years ago, 11 years ago, current Five-year Plan, 2025 Plans. This is, as I said, kind of a standard that is given out to the country and to accomplish the goals set out in these plans becomes a measure by which cadres and entities throughout the country, their performance is measured. So they have tremendous incentive. So all of our tracking, whether they be through the court cases that make it into the public realm, whether cyber intrusion surveys and studies, Verizon did one, the Mandiant one, and so on, they all show a correlation between the priorities of the Chinese government at any time and the kinds of industrial espionage undertaken." Richard Ellings, COMMISSION ON THE THEFT OF AMERICAN INTELLECTUAL PROPERTY [*hereinafter* "IP Commission"], *Testimony, Section 301 Hearing 51* (Oct. 10, 2017).

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industries that China has identified as strategic priorities in its five year plan and S&T development plans.¹⁰⁴⁶

In a review of cybertheft by a group associated with China's intelligence services, cybersecurity firm Novetta found the group targeting entities including Fortune 500 companies and firms with innovative information technology.¹⁰⁴⁷ Such targeting converged with China's strategic interests and the aims of China's 11th Five Year plan for the 2006-2011 period.¹⁰⁴⁸

In 2015, one cybersecurity expert testified to the U.S.-China Economic and Security Review Commission that "China's commercial cyber espionage activity likely supports Communist Party central planning policies designed to provide a competitive advantage for Chinese companies."¹⁰⁴⁹

SolarWorld, in its submission to USTR, stated: "In our view, Chinese hacking and technology theft is pervasive and encouraged by the Chinese Government, as demonstrated by the 2014 indictment of the Chinese People's Liberation Army and as driven by China's Five Year Plans, which target specific high-tech and developing industries."¹⁰⁵⁰

The 3PLA's cyber theft of trade secrets from Westinghouse, documented in the DOJ indictment, is illustrative of how China uses cyber theft as one of multiple instruments to achieve its state-led technology development goals. During China's 12th Five-year planning period (2011-2015), China issued several documents demonstrating its commitment to developing "indigenous" nuclear power technology capabilities. For example, the *12th Five-year Science and Technology Development Plan* expressly states that China should "comprehensively master" Westinghouse's AP1000 nuclear power design technology and "indigenously" complete standard designs at domestic facilities.¹⁰⁵¹ The plan also states that China should establish demonstration power plants for CAP1400 technology, which is China's domestic nuclear design technology based on Westinghouse's AP1000 design with its input.¹⁰⁵² In addition, China's *12th Five-year Energy Technology Development Plan* contains specific references to developing the AP1000 and similar technologies through a process of "indigenization with outside support."¹⁰⁵³

¹⁰⁴⁶ MANDIANT, APT1: EXPOSING ONE OF CHINA'S CYBER ESPIONAGE UNITS 24 (2013).

¹⁰⁴⁷ NOVETTA, OPERATION SMN: AXIOM THREAT ACTOR GROUP REPORT 4, 8-9 (2014). Such innovative technology includes telecommunications equipment manufacturers, infrastructure providers, integrated circuit manufacturers, software vendors, pharmaceutical and cloud computing companies, networking equipment manufacturers, and energy firms.

¹⁰⁴⁸ NOVETTA, OPERATION SMN: AXIOM THREAT ACTOR GROUP REPORT 9-10 (2014).

¹⁰⁴⁹ *Hearing on Commercial Cyber Espionage and Barriers to Digital Trade in China: Hearing Before the U.S.-China Econ. & Sec. Rev. Comm'n* (June 15, 2015) (Statement of Jen Weedon), available at <https://www.uscc.gov/sites/default/files/Weedon%20Testimony.pdf>; see also Richard J. Ellings, IP COMMISSION, *Submission, Section 301 Hearing* 3-4 (Sept. 28, 2017); but see James Lewis, CENTER FOR STRATEGIC AND INTERNATIONAL STUDIES [hereinafter "CSIS"], *Submission, Section 301 Hearing* 4 (Sept. 2017).

¹⁰⁵⁰ SOLARWORLD, *Submission, Section 301 Hearing* 2 (Oct. 20, 2017).

¹⁰⁵¹ *Notice on Issuing the 12th Five-year Science and Technology Development Plan (2011-2015)* § 3, Item 6 (MOST, Guo Ke Fa Ji [2011] No. 270, issued July 4, 2011).

¹⁰⁵² *Notice on Issuing the 12th Five-year Science and Technology Development Plan (2011-2015)* § 3, Item 6 (MOST, Guo Ke Fa Ji [2011] No. 270, issued July 4, 2011).

¹⁰⁵³ *12th Five-year Plan for Energy Technology (2011-2015)*, § 2.2, § 4.3 (NEA, issued Dec. 2011).

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For Westinghouse to operate in China, Westinghouse was required to invest through a joint venture controlled by an SOE,¹⁰⁵⁴ SNPTC, and in order to win the bid it had to agree to transfer all relevant technology for the AP1000 to the SOE.¹⁰⁵⁵ This circumstance is hardly unique to Westinghouse. Section II of this report details how China uses its restrictive foreign investment regime to put pressure on U.S. companies to transfer technology to Chinese enterprises, often state-owned enterprises. As described above, according to the DOJ indictment, 3PLA actors stole thousands of files from Westinghouse's computers, including: trade secrets; technical and design specifications; network credentials; and sensitive e-mails belonging to senior decision-makers, while commercial negotiations between Westinghouse and SNPTC were ongoing.¹⁰⁵⁶ In sum, China first expressly identified through its industrial policies a U.S. technology that China sought to indigenize. China then required technology transfer to an SOE in order for the U.S. company holding the technology to be able to access the China market. China then used its cyber capabilities to steal commercially sensitive information, including trade secrets, negotiating positions and technical designs, from the U.S. company that could provide the SOE with an advantage in its business dealings with the U.S. company.

4. China's Recent Cyber Intrusion Activities Against U.S. Commercial Networks

Beginning in 2014, the United States began stepping up pressure on China for its cyber intrusions into U.S. firms and the theft of commercial information through a number of mechanisms. In September 2015, then-U.S. President Obama and Chinese President Xi reached a commitment that "neither country's government will conduct or knowingly support cyber-enabled theft of intellectual property, including trade secrets or other confidential business information, with the intent of providing competitive advantages to companies or commercial sectors."¹⁰⁵⁷ The United States has been closely monitoring China's cyber activities since this

¹⁰⁵⁴ See e.g., *Catalogue of Industries for Guiding Foreign Investment*, (2007 Amendment) (NDRC, MOC Order No. 57, issued Oct. 31, 2007), Part IV, para. 4 "Catalogue of Restricted Industries for Foreign Investment."

¹⁰⁵⁵ *Westinghouse Wins Nuclear Power Bid*, CHINA DAILY, Dec. 27, 2006 ("According to the [chief representative of Westinghouse China], the company's success can be mainly attributed to three factors: advanced technology, competitive pricing and an offering of all-round technology transfer... [The CEO of] Westinghouse, earlier told China Daily that Westinghouse will fully co-operate with its Chinese customers to transfer all technology as requested"); See *Foreign Companies Eyeing Chinese Nuclear Power Market*, SINOCAST, COMTEX NEWS NETWORK, Dec. 2, 2010 (Westinghouse delivered "more than 75,000 pieces of documents to Chinese customers as part of a technology transfer agreement, hoping to consolidate its leading status in the world's largest nuclear power market. The World Nuclear Association (WNA) believes that it is just because Westinghouse Electric agrees to transfer technology in its contracts with Chinese customers that it successfully wins the bid to build AP1000 nuclear reactors in China.").

¹⁰⁵⁶ U.S. v. Wang Dong et al. at 4.

¹⁰⁵⁷ Press Release, The White House, Fact Sheet: President Xi Jinping's State Visit to the United States (Sept. 25, 2015), <https://obamawhitehouse.archives.gov/the-press-office/2015/09/25/fact-sheet-president-xi-jinpings-state-visit-united-states>. DOJ reaffirmed the 2015 joint statement in October 2017: "Both sides will continue their implementation of the consensus reached by the Chinese and American Presidents in 2015 on U.S.-China cybersecurity cooperation... [including] (2)that neither country's government will conduct or knowingly support cyber-enabled theft of intellectual property, including trade secrets or other confidential business information, with the intent of providing competitive advantage to companies or commercial sectors[.]" See Press Release, First U.S.-China Law Enforcement and Cybersecurity Dialogue (Oct. 6, 2017), *available at* <https://www.justice.gov/opa/pr/first-us-china-law-enforcement-and-cybersecurity-dialogue>.

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consensus was reached, and the evidence indicates that cyber intrusions into U.S. commercial networks in line with Chinese industrial policy goals continue.

Beijing's cyber espionage against U.S. companies persists and continues to evolve. The U.S. Intelligence Community judges that Chinese state-sponsored cyber operators continue to support Beijing's strategic development goals, including its S&T advancement, military modernization, and economic development.

In September 2017, the DOJ filed an indictment against three Chinese nationals who "were owners, employees and associates of the Guangzhou Bo Yu Information Technology Company Limited¹⁰⁵⁸ (Boyusec), a company that cybersecurity firms have linked to the Chinese government."¹⁰⁵⁹ Three firms, all with operations in the United States, are named in the indictment as victims: Moody's Analytics, Siemens AG, and Trimble Inc. The cyber intrusions against Trimble continued until March 2016 (and the related conspiracy which continued until "at least May 2017"¹⁰⁶⁰), targeted the three named firms to steal confidential business and commercial information and work product.¹⁰⁶¹

Specifically, in 2015 and 2016, Trimble was working to develop a new global navigation satellite systems product that "combined software with a relatively low cost antenna to significantly improve the positioning accuracy of mobile devices"¹⁰⁶² (Commercial GNSS Project). "Beginning no later than December 2015, and continuing through March 2016, the co-conspirators targeted the servers within Trimble's network," and by the middle of January 2016 the hackers had "accessed Trimble's network and copied, packaged, and stole computer files containing commercial business documents and data" related to the GNSS project."¹⁰⁶³ In addition to the theft of market research and strategy information, the stolen files also included "confidential and proprietary schematic design for the hardware receiver equipment"¹⁰⁶⁴ and "two directory lists [...] listed files containing the names of a Trimble engineer related to the Commercial GNSS Project."¹⁰⁶⁵ "In total, conspirators stole at least 275 megabytes of data, including compressed data, which included hundreds of files that would have assisted a Trimble competitor in developing, providing, and marketing similar software and subscriptions services, without incurring millions of dollars in research and development costs."¹⁰⁶⁶ According to the

¹⁰⁵⁸ U.S. v. Wu Yingzhou et al., (September 13, 2017) (Crim. No. 17-247 W.D.Pa.).

¹⁰⁵⁹ There have been many public reports linking the firm Boyusec with China's Ministry of State Security (MSS) and/or the PLA's cyber unit. For example, a report from a private cybersecurity firm, Recorded Future, published on May 17th, 2017, links Boyusec to the Chinese Ministry of State Security. The report alleges that the known threat actor group "APT3" is in fact Boyusec and is directly linked to the Chinese state. Insikt Group, *Recorded Future Research Concludes Chinese Ministry of State Security Behind APT3*, RECORDED FUTURE, May 17, 2017 (linking these attacks to the MSS). See also *Siemens, Trimble, Moody's breached by Chinese Hackers, U.S. Charges*, REUTERS, Nov. 27, 2017 (linking Boyusec hacks to the PLA).

¹⁰⁶⁰ U.S. v. Wu Yingzhou et al., at 3.

¹⁰⁶¹ U.S. v. Wu Yingzhou et al., at 3-9.

¹⁰⁶² U.S. v. Wu Yingzhou et al., at 7.

¹⁰⁶³ U.S. v. Wu Yingzhou et al., at 8.

¹⁰⁶⁴ U.S. v. Wu Yingzhou et al., at 8.

¹⁰⁶⁵ U.S. v. Wu Yingzhou et al., at 9.

¹⁰⁶⁶ U.S. v. Wu Yingzhou et al., at 9.

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indictment, intended customers of the Commercial GNSS Project included construction, land survey, and agricultural sectors and the technology had no military applications.¹⁰⁶⁷

Similarly, U.S. cybersecurity firms have concluded that cyber intrusions against U.S. firms by Chinese state-sponsored and supported hackers since September 2015 have decreased or become more difficult to detect, but none has concluded that the activity has ceased entirely.¹⁰⁶⁸ In June 2016, the cybersecurity firm FireEye¹⁰⁶⁹ stated in a report that while cyber intrusions appear to be less voluminous, the attacks appear to now be more focused.¹⁰⁷⁰ According to the report, FireEye observed 262 cyber intrusions from late 2015 through mid-2016, conducted by 72 different China-based groups whose identities range from “government and military actors, contractors, patriotic hackers, and even criminal elements.”¹⁰⁷¹ Of the 262 observed intrusions, 182 involved the networks of private and public U.S. entities.¹⁰⁷² FireEye recorded that in April and May 2016, “three groups compromised the networks of four firms headquartered in the United States, Europe, and Asia that are involved in the manufacturing of semiconductors and chemical components used in the production of semiconductors.”¹⁰⁷³

One of the more notable exceptions to the observed decline comes from APT10, which is believed by several cybersecurity firms to be a Chinese cyber espionage group.¹⁰⁷⁴ In late 2016, BAE Systems and PricewaterhouseCoopers reported that they had been investigating a campaign of intrusions, referred to as “Operation Cloud Hopper” by APT10 against several major IT managed service providers, including some U.S. companies.¹⁰⁷⁵ According to BAE, APT10’s targeting is consistent with “industries that align with China’s 13th Five-year Plan which would provide valuable information to advance the domestic innovation goals held within China.”¹⁰⁷⁶ FireEye believes that APT10’s activities historically have been “in support of Chinese national security

¹⁰⁶⁷ U.S. v. Wu Yingzhou et al., at 7.

¹⁰⁶⁸ FIREEYE, REDLINE DRAWN: CHINA RECALCULATES ITS USE OF CYBER ESPIONAGE 12-14 (2016).

¹⁰⁶⁹ FireEye is now the parent company of Mandiant.

¹⁰⁷⁰ Robert Hackett, *China's Cyber Spying on the U.S. Has Drastically Changed*, FORTUNE, June 25, 2016, (interviewing Laura Galante of FireEye). See also FIREEYE, REDLINE DRAWN: CHINA RECALCULATES ITS USE OF CYBER ESPIONAGE 4 (2016). FireEye concludes that Chinese cyberintrusions and cybertheft were decreasing since mid-2014 due to a number of factors including “ongoing [Chinese] military reforms, widespread exposure of Chinese cyber operations, and actions taken by the U.S. government.” *Id.* at 4; see also IP COMMISSION, UPDATE TO THE IP COMMISSION REPORT (2017) (“cyberattacks may have declined in volume since about 2014, although whether this is a result of a crackdown in China on responsible units in the People’s Liberation Army (PLA) or other factors is not entirely clear.”). Other commenters note the decrease in activity linking it to the September 2015 joint statement as well as ongoing Chinese PLA reorganization, see, for example, James Lewis, CSIS, *Submission, Section 301 Hearing 5* (Sept. 2017); and Erin Ennis, U.S.-CHINA BUSINESS COUNCIL [*hereinafter* “USCBC”], *Testimony, Section 301 Hearing* (Oct. 10, 2017) (referring to FireEye’s June 2016 report concluding “a notable decrease in reports by American companies of intrusions from suspected Chinese hackers.”).

¹⁰⁷¹ FIREEYE, REDLINE DRAWN: CHINA RECALCULATES ITS USE OF CYBER ESPIONAGE 15 (2016).

¹⁰⁷² FIREEYE, REDLINE DRAWN: CHINA RECALCULATES ITS USE OF CYBER ESPIONAGE 12 (2016).

¹⁰⁷³ FIREEYE, REDLINE DRAWN: CHINA RECALCULATES ITS USE OF CYBER ESPIONAGE 13 (2016).

¹⁰⁷⁴ See e.g., FireEye, APT10 (MenuPass Group): New Tools, Global Campaign Latest Manifestation of Longstanding Threat (Apr. 6, 2017); See also BAE Systems, *APT10 – Operation Cloud Hopper*, (2017).

¹⁰⁷⁵ PWC, BAE SYSTEMS, APT10 – OPERATION CLOUD HOPPER (2017), available at <https://www.pwc.co.uk/cyber-security/pdf/cloud-hopper-report-final-v4.pdf>.

¹⁰⁷⁶ PWC, BAE SYSTEMS, APT10 – OPERATION CLOUD HOPPER 15 (Apr. 2017).

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goals, including acquiring valuable military and intelligence information as well as the theft of confidential business data to support Chinese corporations.”¹⁰⁷⁷

BAE notes that APT10’s activities use a strategy that is difficult to trace.¹⁰⁷⁸ By targeting IT managed service providers, APT10 is seeking the ability “to move laterally onto the networks of potentially thousands of other victims” and “has been observed to exfiltrate stolen intellectual property” while evading a network’s defenses.¹⁰⁷⁹ BAE concludes that APT10 has increased its sophistication and has “significant staffing and logistical resources, which have increased over the last three years, with a significant step-change in 2016.”¹⁰⁸⁰

Another cybersecurity firm, Fidelis Cybersecurity, concluded that APT10 installed malware on the website of the National Foreign Trade Council (NFTC), such that when U.S. member companies registered for NFTC’s board meeting scheduled for March 2017, the malware would be executed on their computers.¹⁰⁸¹ According to Fidelis Cybersecurity, this particular malware would allow APT10 to exploit vulnerabilities known to exist within the user’s applications.¹⁰⁸² NFTC board members that may have sought to register for the meeting include a large group of leading U.S. companies across a wide range of commercial sectors.¹⁰⁸³

The data set since September 2015 is necessarily more limited than the extensive data collected over the last decade on Chinese cyber intrusions and cyber theft. Notwithstanding an apparent decline in the observed number of cyber incidents, the continued use of cyber intrusions by the Chinese government targeting U.S. companies remains a serious problem. State-sponsored cyber intrusions originating from China into U.S. commercial networks occur alongside China’s institutional framework for promoting its industrial and technological development through a state-led model in which state-owned enterprises and national champions are the recipients of extensive state support. In sum, the evidence indicates that China continues its policy and practice, spanning more than a decade, of conducting and supporting cyber-enabled theft and intrusions into the commercial networks of U.S. companies. This conduct provides the Chinese

¹⁰⁷⁷ *APT10 (MenuPass Group): New Tools, Global Campaign Latest Manifestation of Longstanding Threat*, FIREEYE, Apr. 6, 2017, https://www.fireeye.com/blog/threat-research/2017/04/apt10_menupass_grou.html.

¹⁰⁷⁸ PWC, BAE SYSTEMS, APT10 – OPERATION CLOUD HOPPER (Apr. 2017).

¹⁰⁷⁹ PWC, BAE SYSTEMS, APT10 – OPERATION CLOUD HOPPER 8 (Apr. 2017).

¹⁰⁸⁰ PWC, BAE SYSTEMS, APT10 – OPERATION CLOUD HOPPER 5 (Apr. 2017). FireEye, in April of 2017 agreed that APT10 had expanded their operations. See *APT10 (MenuPass Group): New Tools, Global Campaign Latest Manifestation of Longstanding Threat*, FIREEYE, Apr. 6, 2017.

¹⁰⁸¹ *Operation TradeSecret: Cyber Espionage at the Heart of Global Trade*, FIDELIS CYBERSECURITY (Apr. 6, 2017), <https://www.fidelissecurity.com/TradeSecret>.

¹⁰⁸² *Operation TradeSecret: Cyber Espionage at the Heart of Global Trade*, FIDELIS CYBERSECURITY (Apr. 6, 2017).

¹⁰⁸³ According to NFTC’s website, board members include: ABB Incorporated, Amazon, Amgen, Applied Materials, Baxter International, British American Tobacco, Caterpillar Incorporated, Chevron, Cisco Systems, Inc., The Coca-Cola Company, ConocoPhillips, Inc, Corning Incorporated, Deloitte & Touche, LLP, Dentons US LLP, DHL Express (USA) Inc., E.I. du Pont de Nemours & Company, eBay Inc., Ernst & Young LLP, ExxonMobil Corporation, FCA US LLC, FedEx Express, Fluor Corporation, Ford Motor Company, General Electric Company, Google Inc., Halliburton Company, Hanesbrands Inc., Hewlett Packard Enterprise Company, HP Inc, IBM Corporation, Johnson Controls, KPMG, LLP, Mars Incorporated, Mayer Brown LLP, McCormick & Company, Inc., Microsoft Corporation, Mondelēz International, Occidental Petroleum Corporation, Oracle Corporation, Pernod Ricard USA, Pfizer Inc., PMI Global Services Inc, PricewaterhouseCoopers LLP, Procter & Gamble Company, Qualcomm Incorporated, Siemens Corporation, TE Connectivity, Toyota Motor Sales, USA, Incorporated, United Technologies Corporation, UPS, Visa Inc, and Wal-mart Stores.

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government with unauthorized access to intellectual property, trade secrets, or confidential business information, including, but not limited to, technical data, negotiating positions, and sensitive and proprietary internal business communications. Indeed, the U.S. Chamber of Commerce in its submission states that the “U.S. industry does not believe there has been a full cessation of cyber enabled IP theft, and we urge the Trump Administration to ensure the Chinese government upholds the agreement.”¹⁰⁸⁴

C. China’s Acts, Policies, and Practices Regarding Cybertheft of Intellectual Property Are Unreasonable

As described above, the statute defines an “unreasonable” act, policy, or practice as one that “while not necessarily in violation of, or inconsistent with, the international legal rights of the United States is otherwise unfair and inequitable.”¹⁰⁸⁵ The statute expressly provides that acts, policies, or practices that are unreasonable includes those that deny fair and equitable provision of “adequate and effective protection of intellectual property rights notwithstanding the fact that the foreign country may be in compliance with the specific obligations of the Agreement on Trade-Related Aspects of Intellectual Property Rights.”¹⁰⁸⁶

It is the longstanding policy of the United States, most recently reaffirmed in 2014 in Presidential Policy Directive 28 (PPD-28), that “[t]he collection of foreign private commercial information or trade secrets is authorized only to protect the national security of the United States or its partners and allies. It is not an authorized foreign intelligence or counterintelligence purpose to collect such information to afford a competitive advantage to U.S. companies or U.S. business sectors commercially.”¹⁰⁸⁷

In fact, China’s activities stand in contrast to domestic and international standards adopted around the world. Many countries prohibit and even criminalize the unauthorized intrusions into computer networks in certain circumstances, including intrusions that result in misappropriation of trade secrets.¹⁰⁸⁸ Moreover, countries around the world have repeatedly condemned activities by government actors to misappropriate trade secrets for commercial purposes. For example, leaders of the 21-member Asia-Pacific Economic Cooperation (APEC), which includes China, in November 2016 “reaffirm[ed] that economies should not conduct or support information and communications technology (ICT)-enabled theft of intellectual property or other confidential business information, with the intent of providing

¹⁰⁸⁴ U.S. CHAMBER OF COMMERCE, *Submission, Section 301 Hearing* 38 (Oct. 3, 2017).

¹⁰⁸⁵ 19 U.S.C. § 2411(d)(3)(A).

¹⁰⁸⁶ 19 U.S.C. § 2411(d)(3)(B)(i)(II).

¹⁰⁸⁷ *Presidential Policy Directive – 2014 Directive on Signals Intelligence Activities*, Daily Comp. Pres. Docs. Section 1(c) (Jan. 17th, 2014), <https://obamawhitehouse.archives.gov/the-press-office/2014/01/17/presidential-policy-directive-signals-intelligence-activities>.

¹⁰⁸⁸ See e.g., In the UK, Computer Misuse Act, 1990, § 1(1)(a); in Ireland, Criminal Damage Act, 1991, § 5(1); in Sweden, Lag (1990:409) Protection of Business Secrets Act and Brottsbalken [BrB][Criminal Code] 4:9c (Swed); in Italy, C.p. 615.ter; in Germany, Strafgesetzbuch [STGB][Penal Code] S (202)(2) and (303)(b); in Japan, [Unauthorized Computer Access Act], Law No. 128 of 1999, art. 3(2).

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competitive advantages to companies or commercial sectors.”¹⁰⁸⁹ Similarly, in November 2015, at the Antalya Summit, the G20 Leaders’ Communique stated: “In the ICT environment, just as elsewhere, states have a special responsibility to promote security, stability, and economic ties with other nations. In support of that objective, we affirm that no country should conduct or support ICT-enabled theft of intellectual property, including trade secrets or other confidential business information, with the intent of providing competitive advantages to companies or commercial sectors.”¹⁰⁹⁰

The fact that a wide group of countries, including China have condemned ICT-enabled theft of intellectual property by foreign governments reinforces the conclusion that government acts, policies, and practices involving cyber theft of trade secrets for a commercial purpose is unreasonable.

Claims that there is no meaningful distinction between the Chinese government’s cyber activities and that of other countries, including the United States, are not valid. China’s cyber intrusions are unique from those of Western market economies because the intrusions occur within the framework of China’s extensive state-driven economic development model, which has no parallel in Western market economies. Not only does the United States not rely on extensive industrial policy tools to identify specific commercial sectors and commercial technologies for development, the United States does not have national champions and state-owned enterprises to implement such policies. In other words, U.S. companies “do not have the advantage of leveraging government intelligence data for commercial gain.”¹⁰⁹¹

Moreover, China’s troubling track record of using cyber intrusion and cyber theft to target U.S. companies in sectors prioritized by China’s industrial policies is “hurting the case for free trade” because “[m]utually beneficial economic exchange occurs only when there is acceptance of the rule of law. If the legal protection of property rights is ignored, free exchange makes much less sense: One side just takes from the other.”¹⁰⁹²

¹⁰⁸⁹ *Fact Sheet: 24th Annual APEC Economic Leaders’ Meeting*, White House Office of the Press Secretary (Nov. 20, 2016), available at <https://obamawhitehouse.archives.gov/the-press-office/2016/11/20/fact-sheet-24th-annual-apec-economic-leaders-meeting>. In addition, the APEC leaders adopted a series of best practices on trade secret protection and enforcement against misappropriation that recognizes that APEC economies should consider applying criminal liability for the willful theft of trade secrets that can arise through electronic intrusions for a commercial advantage. See <https://ustr.gov/sites/default/files/11202016-US-Best-Practices-Trade-Secrets.pdf>.

¹⁰⁹⁰ G20 LEADERS’ COMMUNIQUE, ANTALYA SUMMIT ¶26 (Nov. 2015), available at <http://g20.org.tr/g20-leaders-commenced-the-antalya-summit/>. In September 2017, the G7 issued the following G7 ICT and Industry Ministers’ Declaration, “reaffirm[ing] that no country should conduct or support ICT-enabled infringement or misappropriation of intellectual property, including trade secrets or other confidential business information, with the intent of providing competitive advantages to companies or commercial sectors.” G7 ICT and Industry Ministers’ Declaration Making the Next Production Revolution Inclusive, Open and Secure (Sept. 26 2017).

¹⁰⁹¹ *Cyber Espionage and the Theft of U.S. Intellectual Property and Technology: Hearing Before the House of Representatives Committee on Energy and Commerce Subcommittee on Oversight and Investigations* (July 9, 2013) (statement of Larry M. Wortzel).

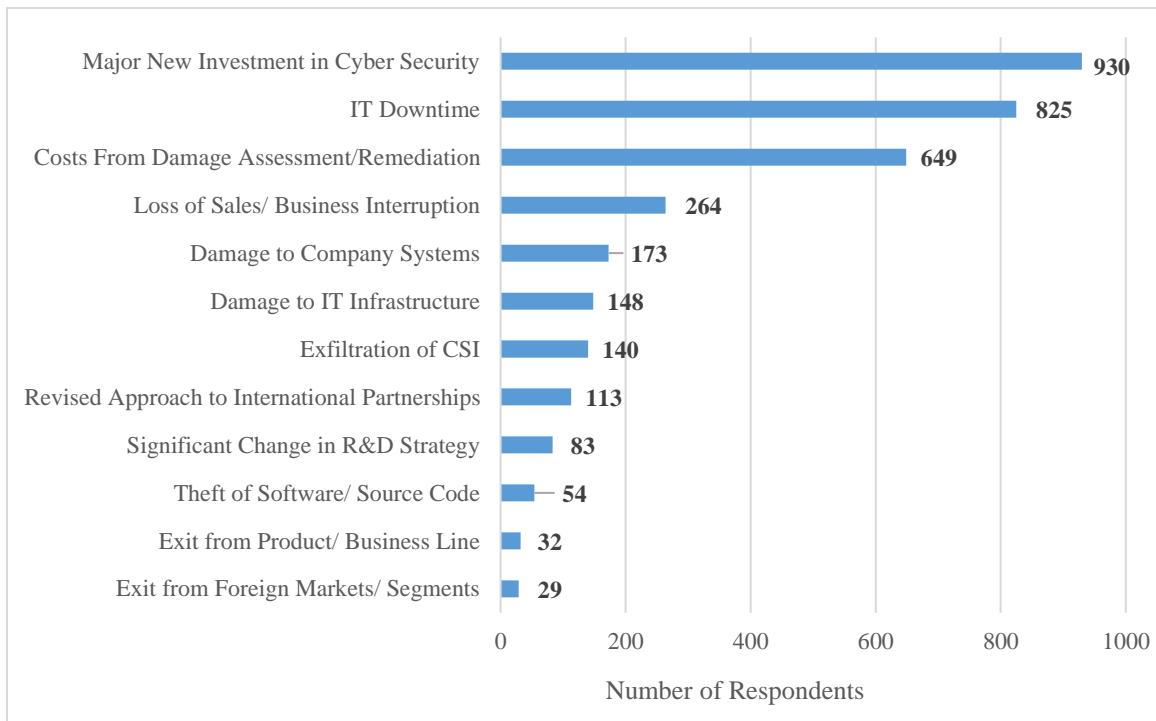
¹⁰⁹² Derek Scissors, *Chinese Economic Espionage Is Hurting the Case for Free Trade*, HERITAGE (Nov. 19, 2012), <http://www.heritage.org/trade/report/chinese-economic-espionage-hurting-the-case-free-trade>.

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Based on the foregoing factors, China’s acts, policies, and practices of cyber intrusions into the computer networks of U.S. business and the theft of firms’ sensitive commercial information are unreasonable.

D. China’s Acts, Policies, and Practices Regarding Cybertheft of Intellectual Property Burden U.S. Commerce

China’s cyber intrusion and cyber theft activities harm U.S. business interests in a variety of ways. It can be difficult to assess the full burden on U.S. commerce because of chronic under reporting, companies being unaware that their network have been compromised or being unaware of the extent of the damage done. Nevertheless, a recent survey conducted by the Bureau of Industry and Security (BIS) contains the responses of more than 8,000 companies in the United States about the impact they face from malicious cyber activity from all sources. Respondents noted the following impacts in descending order:



Source: U.S. Department of Commerce, Bureau of Industry and Security, Ongoing Defense Industrial Base Assessment.

First and foremost, cyber intrusions and cyber theft damage company performance and competitiveness, and result in lost sales, lost revenue, disruption of supply chains, lost business opportunities, and failure to achieve return on investment. For example, SolarWorld in its submission to USTR in connection with this investigation stated that the Chinese government’s cyber-theft of its proprietary business information “resulted in more than \$120 million in damages in the form of lost sales and revenue” because Chinese producers entered the market

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earlier than expected based on the proprietary information taken.¹⁰⁹³ SolarWorld's statement also provided the following:

The injury to SolarWorld and other solar manufacturers is particularly acute, given the [Chinese] government subsidized Chinese producers of solar cells and panels, who appear to have benefited from the stolen trade secrets, have been flooding the U.S. market with dumped products, since 2012, driving nearly 30 U.S. companies out of business, and leaving the U.S. solar manufacturing industry on the brink of collapse.¹⁰⁹⁴

At the hearing, Solar World America's CEO, Jürgen Stein, testified:

[SolarWorld's] efforts to stay ahead of the Chinese wave of illegally dumped and subsidized lower power and quality imports were thwarted by the hacking and theft of proprietary information about the [passivated emitter rear contact (PERC)] process that we had innovated. Between May and September 2012, exactly the time we brought this technology to mass production, SolarWorld's IT system was hacked 13 times by Chinese military hackers. Now, armed with our proprietary data and armed with our cost data, we saw our Chinese competitors leap overnight into PERC technology that we had innovated and with economic information that would unfairly enhance their positions in price negotiations.

By early 2014, a prominent Chinese-based solar rival, JA Solar, announced it was converting to PERC technology, and it began mass production of PERC in May of that year.¹⁰⁹⁵ By early 2015, Chinese-based Trina announced its own PERC conversion and came to the market later that year with a comparable PERC technology.

While the five Chinese military hackers have never been brought to justice in this country, we firmly believe that were it not for their economic espionage and theft from SolarWorld Americas, Chinese solar producers like JA Solar and Trina would have taken far longer to make the leap into PERC technology. State-sponsored hacking and theft by China greatly weakened SolarWorld's first-mover status and again left SolarWorld vulnerable to China's relentless effort to take over the U.S. solar industry through the sale of solar cells and panels below the cost of production.¹⁰⁹⁶

In a post-hearing submission to USTR, SolarWorld stated:

Perhaps the greatest loss that SolarWorld has sustained, and continues to sustain, as a result of the Chinese government's cyberhacking is the unfair loss of its competitive advantage, thereby resulting in significant losses in market leadership, sales, and profitability.... SolarWorld has invested in significant R&D and in the application of new

¹⁰⁹³ SOLARWORLD, *Submission, Section 301 Hearing 3-6* (Oct. 20, 2017) ("SolarWorld strongly believes that this [early entry of Chinese solar competitors] was the result of information stolen from SolarWorld's systems and provided to SolarWorld's Chinese competitors.").

¹⁰⁹⁴ SOLARWORLD, *Submission, Section 301 Hearing 5-6* (Sept. 28, 2017).

¹⁰⁹⁵ In its post-hearing submission, SolarWorld provided a correction that JA Solar announced it had launched its PERC product in October 2013. SOLARWORLD, *Submission, Section 301 Hearing 5* (Oct. 20, 2017).

¹⁰⁹⁶ Juergen Stein, SOLARWORLD, *Testimony, Section 301 Hearing 76* (Oct. 10, 2017).

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technologies in its manufacturing process, all with the goal of moving solar technology forward and successfully competing with the unfairly-priced solar cell and module imports from manufacturers in Asia. These efforts, however, were lost almost overnight when Chinese state-backed actors infiltrated SolarWorld's systems and stole its proprietary information. This loss has been devastating to SolarWorld. As explained in [SolarWorld CEO's] testimony, SolarWorld worked for eight years on the development of the state-of-the-art Passivated Emitter Rear Contact (PERC) technology.' After years of R&D, SolarWorld became the first manufacturer to industrialize PERC cell production, an advantage, based on the price premium for the state-of-the-art technology and high-quality materials used to produce quality product, that we expected to remain for several years. Instead, SolarWorld's significant investments in this technology - estimated at approximately \$60 million in R&D and \$600 million total in setting up all production sites, equipment and processes - have been undercut by Chinese competitors.¹⁰⁹⁷

As the SolarWorld example illustrates, Chinese cyber theft of commercially sensitive information often takes place in industries that the Chinese government has prioritized for state-support, and the victims often operate in U.S. industries that are already suffering from the result of China's other policy tools.

Moreover, U.S. companies often lack effective recourse under U.S. or Chinese law after they have been a victim of a Chinese cyber intrusion or cyber theft to recover the damages they incurred from such activity. As described above, the practical and financial challenges of litigation prevented U.S. Steel from being able to seek legal relief against its well-funded Chinese SOE adversary in litigation.¹⁰⁹⁸

In addition, there are significant remediation costs a company must incur after a cyber intrusion. Even if the hackers are ultimately unable to monetize all the information they have stolen, the victim must expend significant resources to deal with the potential implications. Cyber intrusions and cybertheft can lead to service disruptions that interrupt a firm's sales or other operations.¹⁰⁹⁹ According to one study, it takes on average 191 days to identify that a data breach has occurred, and 66 days to contain it.¹¹⁰⁰ Containing a data breach requires "forensic and investigative activities, assessment and audit services, crisis team management and communications to executive management and board of directors."¹¹⁰¹

¹⁰⁹⁷ SOLARWORLD, *Submission, Section 301 Hearing 2-4* (Oct. 20, 2017).

¹⁰⁹⁸ U.S. STEEL, *Submission, Section 301 Hearing 2* (Sept. 28, 2017).

¹⁰⁹⁹ MCAFEE, CSIS, *THE ECONOMIC IMPACT OF CYBERCRIME AND CYBER ESPIONAGE* 10 (July 2013).

¹¹⁰⁰ PONEMON INSTITUTE, *2017 COST OF DATA BREACH STUDY 3* (June 2017).

¹¹⁰¹ PONEMON INSTITUTE, *2017 COST OF DATA BREACH STUDY 3* (June 2017). The report details these activities further: "Conducting investigations and forensics to determine the root cause of the data breach; Determining the probable victims of the data breach; Organizing the incident response team; Conducting communication and public relations outreach; Preparing notice documents and other required disclosures to data breach victims and regulators; Implementing call center procedures and specialized training." *Id.* at 29.

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Even after a data breach is contained, companies bear significant additional burdens including “legal expenditures . . . identity protection services and regulatory interventions.”¹¹⁰²

Reputational damage is also a burden that companies in many instances bear after experiencing cyber intrusion or cyber theft. After such breaches, experts observe that a company’s valuation may decrease from a drop in stock prices after the company publicly reports that it has been hacked.¹¹⁰³

At the macro-level, one study concluded that cyber intrusions and cyber theft have a significant impact on U.S. employment. A report by the Center for Strategic and International Studies (CSIS) and McAfee, found that cybercrime from all sources costs approximately 200,000 jobs annually in the United States.¹¹⁰⁴ According to CSIS, “Cybercrime is a tax on innovation and slows the pace of global innovation by reducing the rate of return to innovators and investors. . . . For developed countries; cybercrime has serious implications for employment. The effect of cybercrime is to shift employment away from jobs that create the most value. Even small changes in GDP can affect employment.”¹¹⁰⁵

For all of the foregoing reasons, China’s cyber activities targeting U.S. companies poses significant costs on U.S. companies and burdens U.S. commerce.

¹¹⁰² PONEMON INSTITUTE, 2017 COST OF DATA BREACH STUDY 3 (June 2017).

¹¹⁰³ MCAFEE, CSIS, THE ECONOMIC IMPACT OF CYBERCRIME AND CYBER ESPIONAGE at 12-13. The report notes that valuation drops typically do not appear to be permanent; however, financial transactions and lost expectations occurring during the window of any valuation drop would reasonably have an impact on the firm.

¹¹⁰⁴ Press Release, McAfee and CSIS: Stopping Cybercrime Can Positively Impact World Economies (June 9, 2014), <https://www.mcafee.com/us/about/news/2014/q2/20140609-01.aspx>.

¹¹⁰⁵ Press Release, McAfee and CSIS: Stopping Cybercrime Can Positively Impact World Economies (June 9, 2014), <https://www.mcafee.com/us/about/news/2014/q2/20140609-01.aspx>.

VI. Other Acts, Policies, and Practices of China

A. Introduction

The *Federal Register Notice* also invited comments from interested parties on other acts, policies and practices of China relating to technology transfer, intellectual property (IP), and innovation that might be included in this investigation, and/or might be addressed through other applicable mechanisms.¹¹⁰⁶ The following issues were cited by interested parties as acts, policies, and practices of China that may warrant investigation. While the following actions may well meet the Section 301 standards of unreasonable or discriminatory acts, policies, and practices that burden or restrict U.S. commerce, this investigation does not make that determination. These matters warrant further investigation. Going forward, USTR will identify the best tools to address them including, but not limited to, more intensive bilateral engagement, WTO dispute settlement, and/or additional Section 301 investigations.

1. Measures Purportedly Related to National Security or Cybersecurity

Stakeholders report that China increasingly is incorporating into its commercial regulations protections allegedly needed for “national security” or “cybersecurity” purposes.¹¹⁰⁷ Many of China’s regulations are new or in draft form and their effect on U.S. companies is still coming into view. Companies have raised particular concerns about the *Cybersecurity Law of the People’s Republic of China (Cybersecurity Law)*. The *Cybersecurity Law*, which came into effect in June 2017, generally establishes security reviews for a broad range of IT products and services¹¹⁰⁸; imposes restrictions on the cross-border flow of data; requires data localization for certain parties and types of data; and authorizes the development of national cybersecurity standards that exceed the burden and scope of international standards.¹¹⁰⁹

The *Cybersecurity Law*’s provision requiring the implementation of a cybersecurity-specific multilevel protection scheme for information and communications technology (ICT) products used in network security appears to reinforce China’s *Regulations on Classified Protection of Information Security*, also known as the Multi-Level Protection Scheme (MLPS), about which

¹¹⁰⁶ See Appendix A.

¹¹⁰⁷ These cyber-security measures/protections include: *Administrative Measures for New Internet Services Security Assessments (Draft)*, *Baseline for Cybersecurity Classified Protection: Special Security Requirements for Mobile Interconnection (Draft)*, *Catalogue of Network (Cyber) Critical Equipment and Cybersecurity Specific Products, Controllability Evaluation Index for Security of Information Technology Products, Part 1: General Principles (Draft)*, *Controllability Evaluation Index for Security of Information Technology Products, Part 2: Central Processing Unit (Draft)*, *Controllability Evaluation Index for Security of Information Technology Products, Part 5: General Purpose Computer (Draft)*, *Cryptography Law of the People’s Republic of China (Draft)*, *Cybersecurity Law, National Security Law of the People’s Republic of China, Key Network and Specialized Equipment Security Products Catalogue, Regulations on Classified Protection of Information Security (MLPS)*, and *Information Security Technology – Security Controllable Level Evaluation Index of Information Technology Products: Part 2: Central Processing Unit (Draft)*.

¹¹⁰⁸ For a discussion of security review processes and requirements for disclosure of sensitive information, see Section II.C. of this report.

¹¹⁰⁹ See, e.g., NAT’L FOREIGN TRADE COUNCIL [hereinafter “NFTC”], *Submission, Section 301 Hearing 4* (Sept. 28, 2017) (explaining that particularly with respect to cloud service providers, China is the only country addressing national security concerns by pressuring the transfer of technology).

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the United States has expressed concern since adoption in 2007.¹¹¹⁰ In general, the MLPS is a system that classifies ICT products and components according to their level of national security. It is reportedly aimed at promoting indigenous innovation by mandating that products used in Chinese information networks at a certain level of national security importance be developed and produced by entities owned or controlled by the government.¹¹¹¹

With regard to data localization, a number of interested parties discussed Chinese policies that require certain “critical information infrastructure providers” to store their data on servers in China.¹¹¹² As the U.S. Chamber of Commerce explained, if a foreign company is forced to localize a valuable set of data or information in China, whether for R&D purposes or simply to conduct their business, it will have to assume a significant amount of risk that its data or information may be misappropriated or misused, especially given the environment in China, where companies face significant legal and other uncertainties when they try to protect their data and information.¹¹¹³ As noted further, “Chinese laws, such as the National Security, Cybersecurity, and recently passed National Intelligence Laws, give authorities expansive latitude to gain access to companies’ physical facilities and digital information.”¹¹¹⁴

Fears about data misappropriation are also raised by Article 37 of the *Cybersecurity Law*, which prohibits critical information infrastructure operators from exporting “personal information” or “important data” unless they have first gone through a security assessment. While some other jurisdictions require companies to ensure an adequate level of protection for personal information transferred abroad, typically these rules are strictly limited to personal information. An extension to “important data” would therefore appear to sweep in much of the business data that is otherwise routinely and freely transferred cross-border by multinationals operating in other jurisdictions.¹¹¹⁵ Moreover, as the general scope of these security assessments is still being defined, it remains worth monitoring whether China will ultimately impose stricter requirements for “personal information” exports than what is now found in international practice.

Stakeholders also raised concerns with China’s encryption regulations and the China Compulsory Certification (CCC) testing regime for information security products. While these measures have been in force since 2009, until 2017 they were limited to companies seeking to sell to China’s government. However, in June 2017, the Cybersecurity Administration of China

¹¹¹⁰ INFORMATION TECHNOLOGY & INNOVATION FOUNDATION [*hereinafter* “ITIF”], *Submission, Section 301 Hearing* (Sept. 28, 2017).

¹¹¹¹ U.S. CHAMBER OF COMMERCE [*hereinafter* “U.S. Chamber”], *Submission, Section 301 Hearing* 32 (Oct. 3, 2017); SEMICONDUCTOR INDUSTRY ASS’N [*hereinafter* “SIA”], *Submission, Section 301 Hearing* 11-2 (Oct. 5, 2017).

¹¹¹² The definition given for “critical information infrastructure operators” in the *Cybersecurity Law* (adopted by the Twentieth Session of the Twelfth NPC on Nov. 7, 2016, effective June 1, 2017) is vague and it is unclear how broadly it will be interpreted. *See Cybersecurity Law*, art. 31 (“The national government, on the basis of a network security level protection system, will prioritize protection of important industries and fields including public communications and information services, energy, transport, water utilities, finance, public services, and e-government affairs, as well as other critical information infrastructure that may result in serious damage to national security, people’s livelihoods, and the public interest as soon as it is destroyed, loses its functionality or experiences a data breach.”).

¹¹¹³ *See, e.g.*, U.S. CHAMBER, *Submission, Section 301 Hearing* 33-4 (Oct. 3, 2017).

¹¹¹⁴ *See, e.g.*, U.S. CHAMBER, *Submission, Section 301 Hearing* 10, 34 (Oct. 3, 2017).

¹¹¹⁵ U.S. CHAMBER, *Submission, Section 301 Hearing* 10, 34 (Oct. 3, 2017).

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released the *Catalogue of Critical Network Equipment and Network Security Products (First Batch)*,¹¹¹⁶ which expanded the restrictions beyond government procurement to 15 categories of commercial products, including routers, anti-spam software, servers, and other technology products.¹¹¹⁷ These and other final and draft regulations raise substantial concerns for U.S. stakeholders.

2. Inadequate Intellectual Property Protection

Inadequate protection of IP has been a top concern for American companies doing business in China for many years.¹¹¹⁸ Stakeholders identified numerous IP protection problems including trade secret theft¹¹¹⁹ and bad faith trademarking.¹¹²⁰ With regard to patents, stakeholders also asserted that Chinese government-owned entities were responsible for substantial infringement.¹¹²¹ Stakeholders were further concerned about widespread counterfeiting in China and the distribution of counterfeit products over the Internet.¹¹²² Counterfeiting occurs in a wide

¹¹¹⁶ *Four Department Notice on Announcing the Catalogue of Critical Network Equipment and Network Security Products (First Batch)* (National Internet Information Office, MIIT, Public Security Bureau, Certification and Accreditation Administration, issued June 1, 2017).

¹¹¹⁷ TELECOMMUNICATIONS INDUSTRY ASS'N [*hereinafter* "TIA"], *Submission, Section 301 Hearing 3* (Sept. 28, 2017).

¹¹¹⁸ *See e.g.*, AM. BAR ASS'N [*hereinafter* "ABA IPL"], *Submission, Section 301 Hearing 2* (Sept. 27, 2017); ABRO INDUSTRIES [*hereinafter* "ABRO"], *Submission, Section 301 Hearing 1* (Sept. 28, 2017); AM. APPAREL & FOOTWEAR ASS'N [*hereinafter* "AAFA"], *Submission, Section 301 Hearing 2, 4* (Sept. 28, 2017); AM. BRIDAL & PROM INDUSTRY ASS'N [*hereinafter* "ABPIA"], *Submission, Section 301 Hearing 2-3* (Sept. 28, 2017); AM CHAMBER OF COMMERCE SHANGHAI [*hereinafter* "Am. Cham. Shanghai"], *Submission, Section 301 Hearing 1* (Sept. 28, 2017); AM. CHEMISTRY COUNCIL [*hereinafter* "ACC"], *Submission, Section 301 Hearing 3* (Sept. 27, 2017); AM. SUPERCONDUCTOR CORP. [*hereinafter* "AMSC"], *Submission, Section 301 Hearing 2-3* (Sept. 28, 2017); BIOTECHNOLOGY INNOVATION ORG. [*hereinafter* "BIO"], *Submission, Section 301 Hearing 1-2* (Sept. 28, 2017); BONUMOSE BIOCHEM [*hereinafter* "Bonumose"], *Submission, Section 301 Hearing 3-4* (Sept. 27, 2017); LEE BRANSTETTER, *Submission, Section 301 Hearing 4* (Sept. 28, 2017); Stephen Zirschky, *Submission, Section 301 Hearing 2* (Sept. 28, 2017); BSA THE SOFTWARE ALLIANCE [*hereinafter* "BSA"], *Submission, Section 301 Hearing 2* (Sept. 28, 2017); JACK CHANG, *Submission, Section 301 Hearing 4* (Sept. 28, 2017); COMPTIA, *Submission, Section 301 Hearing 2* (Sept. 28, 2017); CONGRESSMAN PASCRELL, *Submission, Section 301 Hearing 4* (Sept. 28, 2017); CONSUMER TECHNOLOGY ASS'N [*hereinafter* "CTA"], *Submission, Section 301 Hearing 2* (Sept. 28, 2017); James Lewis, CENTER FOR STRATEGIC & INT'L STUDIES [*hereinafter* "CSIS"], *Submission, Section 301 Hearing 6* (Sept. 27, 2017); DAIS ANALYTIC CORP. [*hereinafter* "Dais"], *Submission, Section 301 Hearing 2* (Sept. 27, 2017); COMM'N ON THE THEFT OF INTELLECTUAL PROPERTY [*hereinafter* "IP Commission"], *Submission, Section 301 Hearing 3* (Sept. 28, 2017); MOTOR & EQUIPMENT MANUFACTURERS ASS'N [*hereinafter* "MEMA"], *Submission, Section 301 Hearing 2* (Sept. 28, 2017); MICHELMAN, *Submission, Section 301 Hearing 2* (Oct. 6, 2017); NAT'L ASS'N OF MANUFACTURERS [*hereinafter* "NAM"], *Submission, Section 301 Hearing 2* (Sept. 28, 2017); NFTC, *Submission, Section 301 Hearing 2* (Sept. 28, 2017); PHRMA, *Submission, Section 301 Hearing 2* (Sept. 22, 2017); SIA, *Submission, Section 301 Hearing 1* (Oct. 5, 2017); STEWART & STEWART, *Submission, Section 301 Hearing 2* (Sept. 28, 2017); U.S. CHAMBER, *Submission, Section 301 Hearing 5* (Oct. 3, 2017); U.S. CHINA BUSINESS COUNCIL [*hereinafter* "USCBC"], *Submission, Section 301 Hearing 2* (Sept. 28, 2017); U.S. COUNCIL FOR INT'L BUSINESS [*hereinafter* "USCIB"], *Submission, Section 301 Hearing 1-2* (Sept. 28, 2017); WILEY REIN, *Submission, Section 301 Hearing 12, 14* (Sept. 28, 2017).

¹¹¹⁹ SIA, *Submission, Section 301 Hearing 15-16* (Oct. 5, 2017); ABA IPL, *Submission, Section 301 Hearing 3-4* (Sept. 27, 2017).

¹¹²⁰ CTA, *Submission, Section 301 Hearing 3-4* (Sept. 28, 2017).

¹¹²¹ CATHERINE LIN-HENDEL, *Submission, Section 301 Hearing* (Aug. 28, 2017); SKADDEN, ARPS. SLATE, MEAGHER & FLOM LLP [*hereinafter* "Skadden"], *Submission, Section 301 Hearing 20* (Sept. 28, 2017).

¹¹²² AAFA, *Submission, Section 301 Hearing 2, 4* (Sept. 28, 2017); ABPIA, *Submission, Section 301 Hearing 1-2* (Sept. 28, 2017).

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range of product categories, including medicines, consumer electronics, toys, computer accessories, clothing and footwear, formalwear, automobile parts, and semiconductors.¹¹²³

Stakeholders also raised concerns over inadequate IP enforcement mechanisms available in China. Although some stakeholders submit that the legal framework has improved, many reported substantial obstacles to civil enforcement and ineffective and inconsistent criminal and administrative enforcement by the government of China.¹¹²⁴ Stakeholders further stated that enforcement problems are exacerbated by insufficient governmental coordination, insufficient political will by Chinese officials, and inadequate resources and capacity to address IP problems.¹¹²⁵

3. China's Anti-Monopoly Law

A number of submissions asserted that China uses the *Anti-Monopoly Law of the People's Republic of China* (AML) as a means to obtain U.S. IP, citing as examples the AML agencies' multiple draft guidelines. Other submissions raised general concern regarding use of the AML for industrial policy purposes, and several complained about poor procedural protections in enforcement of the AML and about certain enforcement actions allegedly addressing abuse of dominance in the exercise of IP rights.

In regard to the concerns raised on IP guidelines, submissions cited the State Administration of Industry Commerce (SAIC) *2015 Rules on the Prohibition of Conduct Eliminating or Restricting Competition by Abusing Intellectual Property Rights* (SAIC Rules) and the March 2017 draft *State Council Anti-Monopoly Commission Guidelines Against Abuse of Intellectual Property Rights* (Guidelines).¹¹²⁶ For example, there were concerns with Article 7 of the SAIC Rules, which recognizes IP as an "essential facility," with one submission noting that this provision could allow SAIC to treat any unilateral refusal to license as an "abuse of IPR."¹¹²⁷

In regard to enforcement, several submissions asserted that Chinese AML authorities use the AML as a tool to advance industrial policy rather than to protect competition.¹¹²⁸ While some submissions noted improvements in AML enforcement, they also noted continued concerns with

¹¹²³ See, e.g., COMPTIA, *Submission, Section 301 Hearing 7* (Sept. 28, 2017); CHINA CHAMBER OF INTERNATIONAL COMMERCE [hereinafter "CCOIC"], *Submission, Section 301 Hearing 24-9* (Sept. 26, 2017); ABPIA, *Submission, Section 301 Hearing 1* (Sept. 28, 2017); U.S. CHAMBER, *Submission, Section 301 Hearing 36* (Oct. 3, 2017).

¹¹²⁴ ABA IPL, *Submission, Section 301 Hearing 2, 4* (Sept. 27, 2017); CTA, *Submission, Section 301 Hearing 4* (Sept. 28, 2017); MEMA, *Submission, Section 301 Hearing 3-4* (Sept. 28, 2017); NAM, *Submission, Section 301 Hearing 13-4* (Sept. 28, 2017); USCIB, *Submission, Section 301 Hearing 2* (Sept. 28, 2017).

¹¹²⁵ MEMA *Submission, Section 301 Hearing 3-4* (Sept. 28, 2017); NAM, *Submission, Section 301 Hearing 13-4* (Sept. 28, 2017).

¹¹²⁶ See, e.g., Stephen Ezell, ITIF, *Testimony, Section 301 Hearing 21* (Oct. 10, 2017); NAM, *Submission, Section 301 Hearing 9, 13* (Sept. 28, 2017).

¹¹²⁷ SIA, *Submission, Section 301 Hearing 13* (Oct. 5, 2017).

¹¹²⁸ See, e.g., USCIB, STATEMENT ON CHINA'S COMPLIANCE WITH ITS WTO COMMITMENTS 15 (Sept. 20, 2017); USCIB, *Submission, Section 301 Hearing 1-2* (Sept. 28, 2017).

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transparency and due process,¹¹²⁹ and alleged discriminatory enforcement against certain foreign companies.¹¹³⁰

4. China's Standardization Law

According to stakeholder submissions, China's recently enacted *Amendments to the Standardization Law of the People's Republic of China (Standardization Law Amendments)* raise concerns related to whether U.S. companies will be required to transfer valuable IP or license it on non-market terms as a condition of participation in standards setting bodies.¹¹³¹ Stakeholders assert that the amendments impose unique and potentially damaging requirements on enterprises to publicly disclose functional indicators and performance indicators of their products or services, which may result in unnecessary costs and risks.¹¹³² Furthermore, the Amendments reportedly endorse a preference for indigenous innovation in Chinese standards, to the detriment of U.S. and other non-Chinese companies.¹¹³³

5. Talent Acquisition

Certain participants in the investigation emphasized the challenges posed by China's acquisition of U.S. engineers and other professional employees in technology-related companies. For instance, the Semiconductor Industry Association (SIA) has observed a "notable shift from M&A to a more sophisticated process of acquiring hundreds of talented engineers and managers from foreign companies."¹¹³⁴ As SIA explains:

It has been reported that Chinese state-owned firms have been highly successful in recruiting this high-tech engineering talent, which is enabled by massive Chinese government subsidies that allow for salaries to be offered at high, non-market rates. Often high-level managers are lured away from target companies with compensation packages four or five times the market rates. These managers then target key former employees in technology development, manufacturing and facilities, promising outsized compensation.¹¹³⁵

The Chinese government has issued a number of medium- and long-term plans for talent development,¹¹³⁶ while pursuing initiatives that actively encourage the recruitment of foreign

¹¹²⁹ AM. CHAMBER OF COMMERCE CHINA, 2017 AMCHAM CHINA WHITE PAPER 38 (2017).

¹¹³⁰ See, e.g., USCIB, *Submission, Section 301 Hearing 2* (Sept. 28, 2017); WILEY REIN, *Submission, Section 301 Hearing 6-8* (Sept. 28, 2017); IP COMM'N, *Submission, Section 301 Hearing 8* (Sept. 28, 2017).

¹¹³¹ U.S. CHAMBER, *Submission, Section 301 Hearing 26* (Oct. 3, 2017); WILEYREIN, *Submission, Section 301 Hearing 6-7* (Sept. 28, 2017).

¹¹³² U.S. CHAMBER, *Submission, Section 301 Hearing 26* (Oct. 3, 2017).

¹¹³³ *PRC Standardization Law Amendments*, art. 20 (promulgated by the Fifth Session of the Twelfth NPC on Dec. 29, 1988, amended by the Thirtieth Session of the Twelfth NPC on Nov. 4, 2017).

¹¹³⁴ SIA, *Submission, Section 301 Hearing 15* (Oct. 5, 2017).

¹¹³⁵ SIA, *Submission, Section 301 Hearing 15-6* (Oct. 5, 2017).

¹¹³⁶ For instance, to improve the quality of high-skilled labor in the economy, the CCP Central Committee and the State Council issued the *Outline of the National Medium- and Long-Term Talent Development Plan* in 2010. See *Outline of the National Medium- and Long-Term Talent Development Plan* (CCP Central Committee and State Council, Zhong Fa [2010] No. 6, issued Apr. 1, 2010); Wang Huiyao, CHINA'S NATIONAL TALENT PLAN: KEY MEASURES AND OBJECTIVES, BROOKINGS INSTITUTE, 23 (Nov. 2010).

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talent and Chinese persons overseas to boost national competitiveness. These plans establish specific targets for attracting “talented” individuals and cut across technical specializations, finance, and high-technology domains.¹¹³⁷

China’s talent acquisition activities are global in their scope and scale, but reportedly have been particularly concentrated in top U.S. universities and Silicon Valley. With support from various government programs and entities, notably the China Association of Science and Technology, Chinese enterprises reportedly have begun establishing “talent bases” in China and the United States to support cutting-edge R&D and the active recruitment of top talent. For instance, Chinese government plans prioritize the pursuit of human capital in artificial intelligence (AI).¹¹³⁸ And, as the SIA submission indicates, Chinese companies have reportedly lured top talent from foreign companies by paying well above market compensation—enabled by government financing, direction, and support.¹¹³⁹ These activities may provide a key conduit for technology transfer from the United States to China.

B. Conclusion

USTR acknowledges the importance of these issues and agrees with stakeholders that the matters warrant further investigation. A number of concerns of this nature have previously been raised in USTR’s annual proceedings under Special 301 and the annual review of China’s WTO accession compliance. A range of tools may be appropriate to address these serious matters including more intensive bilateral engagement, WTO dispute settlement, and/or additional Section 301 investigations.

¹¹³⁷ See, e.g., *Notice on Issuing the “Medium- and Long-Term Financial Sector Talent Development Plan”* (People’s Bank of China, China Banking Regulatory Commission, China Securities Regulatory Commission, China Insurance Regulatory Commission, Yin Fa [2011] No. 18, promulgated Jan. 24, 2011); *Notice on Launching Stage-Wise Evaluation Work for the “Medium- and Long-Term Plan to Establish Technical Specialization Talent Teams (2010-2020)”* (Ministry of Human Resources and Social Security, promulgated on May 27, 2013); *Medium- and Long-Term Plan to Establish High-Skilled Talent Teams* (Ministry of Human Resources and Social Security, promulgated in 2011).

¹¹³⁸ *State Council Notice on the Issuance of the New Generation Artificial Intelligence Development Plan* (State Council, Guo Fa [2017] No. 35, promulgated on July 8, 2017), available at http://www.gov.cn/zhengce/content/2017-07/20/content_5211996.htm; see also *An Overview of Overseas Offshore Talent Innovation Base*, CAST, <http://www.cast.org.cn/n200675/n202200/n202372/c400650/content.html>.

¹¹³⁹ SIA, *Submission, Section 301 Hearing* 15-6 (Oct. 5, 2017); Huang Yijun, Chen Liangrong, He Yunting, *Interview with Ziguang Group Chairman Zhao Weiguo*, TIANXIA NEWS, Nov. 1, 2015; *Taiwan Semiconductor Leader Jumps to the Mainland*, INITIUM MEDIA, Oct. 7, 2015; David Manners, *Micron Sues Ex-Employees Working for China DRAM Companies*, ELECTRONICS WEEKLY, Apr. 7, 2017.

APPENDIX A

ADDRESSES: Submit completed loan applications to: U.S. Small Business Administration, Processing And Disbursement Center, 14925 Kingsport Road, Fort Worth, TX 76155.

FOR FURTHER INFORMATION CONTACT: A. Escobar, Office of Disaster Assistance, U.S. Small Business Administration, 409 3rd Street SW., Suite 6050, Washington, DC 20416, (202) 205-6734.

SUPPLEMENTARY INFORMATION: The notice of an Administrative declaration for the State of CALIFORNIA, dated 07/31/2017, is hereby amended to establish the incident closing date as 08/01/2017.

Incident: Detwiler Fire.

Incident Period: 07/16/2017 through 08/01/2017.

All other information in the original declaration remains unchanged.

(Catalog of Federal Domestic Assistance Number 59008)

Linda E. McMahan,
Administrator.

[FR Doc. 2017-17915 Filed 8-23-17; 8:45 am]

BILLING CODE 8025-01-P

**OFFICE OF THE UNITED STATES
TRADE REPRESENTATIVE**

[Docket No. USTR-2017-0016]

**Initiation of Section 301 Investigation;
Hearing; and Request for Public
Comments: China's Acts, Policies, and
Practices Related to Technology
Transfer, Intellectual Property, and
Innovation**

AGENCY: Office of the United States Trade Representative.

ACTION: Notice of initiation of investigation; hearing; and request for comments.

SUMMARY: The United States Trade Representative has initiated an investigation pursuant to the Trade Act of 1974, as amended (the Trade Act), to determine whether acts, policies, and practices of the Government of China related to technology transfer, intellectual property, and innovation are actionable under the Trade Act. The inter-agency Section 301 Committee is holding a public hearing and seeking comments in connection with this investigation.

DATES: The United States Trade Representative initiated the investigation on August 18, 2017. The schedule and due dates are as follows:

To be assured of consideration, written comments and requests to appear at the hearing must be submitted by Thursday, September 28, 2017 at

11:59 p.m. The request to appear must include a summary of testimony.

Tuesday, October 10, 2017: The Section 301 Committee will convene a public hearing in the main hearing room of the U.S. International Trade Commission, 500 E Street SW., Washington, DC 20436, beginning at 9:30 a.m. If necessary, the hearing may continue on the next business day.

To be assured of consideration, post-hearing rebuttal comments must be submitted by Friday, October 20, 2017 at 11:59 p.m.

ADDRESSES: You should submit written comments through the Federal eRulemaking Portal: <http://www.regulations.gov>. Follow the instructions for submitting comments in section II below. For alternatives to on-line submissions, please contact Gwendolyn Diggs at (202) 395-3150 before transmitting a comment and in advance of the relevant deadline.

FOR FURTHER INFORMATION CONTACT: For procedural questions concerning written comments or participating in the public hearing, contact Gwendolyn Diggs at (202) 395-3150. Direct all other questions regarding this notice to William Busis, Deputy Assistant U.S. Trade Representative for Monitoring and Enforcement and Chair of the Section 301 Committee, or Katherine Linton and Arthur Tsao, Assistant General Counsels at (202) 395-3150.

SUPPLEMENTARY INFORMATION

A. The President's Memorandum

On August 14, 2017, the President issued a Memorandum (82 FR 39007) to the United States Trade Representative stating *inter alia*:

China has implemented laws, policies, and practices and has taken actions related to intellectual property, innovation, and technology that may encourage or require the transfer of American technology and intellectual property to enterprises in China or that may otherwise negatively affect American economic interests. These laws, policies, practices, and actions may inhibit United States exports, deprive United States citizens of fair remuneration for their innovations, divert American jobs to workers in China, contribute to our trade deficit with China, and otherwise undermine American manufacturing, services, and innovation.

The Memorandum included the following instruction:

The United States Trade Representative shall determine, consistent with section 302(b) of the Trade Act of 1974 (19 U.S.C. 2412(b)), whether to investigate any of China's laws, policies, practices, or actions that may be unreasonable or discriminatory and that may be harming American intellectual property rights, innovation, or technology development.

Pursuant to the President's Memorandum, on August 18, 2017, the United States Trade Representative initiated an investigation under section 302(b) of the Trade Act (19 U.S.C. 2412(b)) to determine whether acts, policies, and practices of the Government of China related to technology transfer, intellectual property, and innovation are unreasonable or discriminatory and burden or restrict U.S. commerce.

B. The Chinese Government's Acts, Policies and Practices

The acts, policies and practices of the Government of China directed at the transfer of U.S. and other foreign technologies and intellectual property are an important element of China's strategy to become a leader in a number of industries, including advanced-technology industries, as reflected in China's "Made in China 2025" industrial plan, and other similar industrial policy initiatives. The Chinese government's acts, policies, and practices take many forms. The investigation initially will consider the following specific types of conduct:

First, the Chinese government reportedly uses a variety of tools, including opaque and discretionary administrative approval processes, joint venture requirements, foreign equity limitations, procurements, and other mechanisms to regulate or intervene in U.S. companies' operations in China, in order to require or pressure the transfer of technologies and intellectual property to Chinese companies. Moreover, many U.S. companies report facing vague and unwritten rules, as well as local rules that diverge from national ones, which are applied in a selective and non-transparent manner by Chinese government officials to pressure technology transfer.

Second, the Chinese government's acts, policies and practices reportedly deprive U.S. companies of the ability to set market-based terms in licensing and other technology-related negotiations with Chinese companies and undermine U.S. companies' control over their technology in China. For example, the Regulations on Technology Import and Export Administration mandate particular terms for indemnities and ownership of technology improvements for imported technology, and other measures also impose non-market terms in licensing and technology contracts.

Third, the Chinese government reportedly directs and/or unfairly facilitates the systematic investment in, and/or acquisition of, U.S. companies and assets by Chinese companies to obtain cutting-edge technologies and

intellectual property and generate large-scale technology transfer in industries deemed important by Chinese government industrial plans.

Fourth, the investigation will consider whether the Chinese government is conducting or supporting unauthorized intrusions into U.S. commercial computer networks or cyber-enabled theft of intellectual property, trade secrets, or confidential business information, and whether this conduct harms U.S. companies or provides competitive advantages to Chinese companies or commercial sectors.

In addition to these four types of conduct, interested parties may submit for consideration information on other acts, policies and practices of China relating to technology transfer, intellectual property, and innovation described in the President's Memorandum that might be included in this investigation, and/or might be addressed through other applicable mechanisms.

C. Relevant Provisions of the Trade Act

Section 302(b)(1)(A) of the Trade Act authorizes the United States Trade Representative to initiate an investigation to determine whether conduct is actionable under section 301 of the Trade Act.

Actionable conduct under section 301(b)(1) includes, *inter alia*, acts, policies and practices of a foreign country that are unreasonable or discriminatory and burden or restrict U.S. commerce. Unreasonable actions are those that while not necessarily in violation of, or inconsistent with, the international legal rights of the United States are otherwise unfair and inequitable.

Pursuant to section 302(b)(1)(B), the United States Trade Representative has consulted with appropriate advisory committees. The United States Trade Representative also has consulted with members of the inter-agency Section 301 Committee. On the date of initiation, the United States Trade Representative requested consultations with the Government of China concerning the issues under investigation, pursuant to section 303(a)(1) of the Trade Act (19 U.S.C. 2413(a)(1)).

Pursuant to section 304(a)(2)(B) of the Trade Act, 19 U.S.C. 2414(a)(2)(B), the United States Trade Representative must determine within 12 months from the date of initiation of the investigation whether any act, policy, or practice described in section 301 of the Trade Acts exists and, if that determination is affirmative, what action, if any, to take.

II. Request for Comments and To Testify at the Hearing

A. Topics and Schedule

The Office of the U.S. Trade Representative (USTR) invites written comments on:

1. The acts, policies, and practices of the Chinese government described in Section I.B above.
2. Information on other acts, policies and practices of China relating to technology transfer, intellectual property, and innovation as described in the President's Memorandum, which might be included in this investigation, and/or might be addressed through other applicable mechanisms.
3. The nature and level of burden or restriction on U.S. commerce caused by the applicable acts, policies and practices of the Government of China, and/or any economic assessment of that burden or restriction.
4. The determinations required under section 304 of the Trade Act, that is, whether actionable conduct exists under section 301(b) and what action, if any, should be taken.

To be assured of consideration, USTR must receive initial written comments by 11:59 p.m. on September 28, 2017, in accordance with the instructions in section II.B below.

The Section 301 Committee will convene a public hearing in the main hearing room of the U.S. International Trade Commission, 500 E Street SW., Washington DC 20436, beginning at 9:30 a.m. on October 10, 2017. Persons wishing to appear at the hearing must provide written notification of their intention and a summary of the proposed testimony by 11:59 p.m. on September 28, 2017, in accordance with the instructions in section II.B below. Remarks at the hearing may be no longer than five minutes to allow for possible questions from the Section 301 Committee. The deadline for submission of post-hearing rebuttal comments is 11:59 p.m. on October 20, 2017.

Indicate in the "Type Comment" field if you are submitting a request to appear at the hearing, and include the name, address and telephone number of the person presenting the testimony. A summary of the testimony should be attached by using the "Upload File" field. The file name should include the name of the person who will be presenting the testimony.

B. Requirements for Submissions

Persons submitting a notification of intent to testify, a summary of testimony, or written comments must do so in English, and must identify this matter (on the reference line of the first

page of the submission) as "Section 301 Investigation: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation."

To be assured of consideration, you must submit written comments, requests to testify, and summaries of testimony by 11:59 p.m. on September 28, 2017. The deadline for submitting rebuttal comments is 11:59 p.m. on October 20, 2017.

All submissions must be in English and sent electronically via www.regulations.gov using docket number USTR-2017-0016. You must make any alternative arrangements in advance of the relevant deadline and before transmitting a comment by contacting Gwendolyn Diggs at (202) 395-3150.

To make a submission via www.regulations.gov, enter Docket Number USTR-2017-0016 on the home page and click "Search." The site will provide a search-results page listing all documents associated with this docket. Find the reference to this notice and click on the button labeled "Comment Now." For further information on using the www.regulations.gov Web site, please consult the resources provided on the Web site by clicking on "How to Use Regulations.gov" on the bottom of the home page.

The www.regulations.gov Web site allows users to provide comments by filling in a "Type Comment" field, or by attaching a document using an "Upload File" field. USTR prefers that you provide submissions as an attached document. If a document is attached, it is sufficient to type "see attached" in the "Type Comment" field. USTR prefers submissions in Microsoft Word (.doc) or Adobe Acrobat (.pdf) format. If the submission is in another file format, please indicate the name of the software application in the "Type Comment" field. File names should reflect the name of the person or entity submitting the comments.

Indicate in the "Type Comment" field if you are submitting a request to appear at the hearing, and include the name, address and telephone number of the person presenting the testimony. The file name should include who will be presenting the testimony.

Please do not attach separate cover letters to electronic submissions; rather, include any information that might appear in a cover letter in the comments themselves. Similarly, to the extent possible, please include any exhibits, annexes, or other attachments in the same file as the comment itself, rather than submitting them as separate files.

For any comments submitted electronically containing business confidential information, the file name of the business confidential version should begin with the characters "BC". Any page containing business confidential information must be clearly marked "BUSINESS CONFIDENTIAL" on the top of that page and the submission should clearly indicate, via brackets, highlighting, or other means, the specific information that is business confidential. If you request business confidential treatment, you must certify that the information is business confidential and would not customarily be released to the public. Filers of submissions containing business confidential information also must submit a public version of their comments. The file name of the public version should begin with the character "P". The "BC" and "P" should be followed by the name of the person or entity submitting the comments or rebuttal comments. If these procedures are not sufficient to protect business confidential information or otherwise protect business interests, please contact Katherine Linton at 202-395-3150 to discuss whether alternative arrangements are possible.

We will post comments in the docket for public inspection, except business confidential information. You can view comments on the <https://www.regulations.gov> Web site by entering docket number USTR-2017-0016 in the search field on the home page.

William L. Busis,

Chair, Section 301 Committee, Office of the United States Trade Representative.

[FR Doc. 2017-17931 Filed 8-23-17; 8:45 am]

BILLING CODE 3290-F7-P

DEPARTMENT OF TRANSPORTATION

Federal Motor Carrier Safety Administration

[Docket No. FMCSA-2017-0042]

Qualification of Drivers; Exemption Applications; Diabetes Mellitus

AGENCY: Federal Motor Carrier Safety Administration (FMCSA), DOT.

ACTION: Notice of applications for exemption; request for comments.

SUMMARY: FMCSA announces receipt of applications from 43 individuals for an exemption from the prohibition in the Federal Motor Carrier Safety Regulations (FMCSRs) against persons with insulin-treated diabetes mellitus (ITDM) operating a commercial motor

vehicle (CMV) in interstate commerce. If granted, the exemptions would enable these individuals with ITDM to operate CMVs in interstate commerce.

DATES: Comments must be received on or before September 25, 2017.

ADDRESSES: You may submit comments bearing the Federal Docket Management System (FDMS) Docket No. FMCSA-2017-0042 using any of the following methods:

- *Federal eRulemaking Portal:* Go to <http://www.regulations.gov>. Follow the online instructions for submitting comments.
- *Mail:* Docket Management Facility; U.S. Department of Transportation, 1200 New Jersey Avenue SE., West Building Ground Floor, Room W12-140, Washington, DC 20590-0001.
- *Hand Delivery:* West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC, between 9 a.m. and 5 p.m., e.t., Monday through Friday, except Federal holidays.
- *Fax:* 1-202-493-2251.

Instructions: Each submission must include the Agency name and the docket number(s) for this notice. Note that all comments received will be posted without change to <http://www.regulations.gov>, including any personal information provided. Please see the Privacy Act heading below for further information.

Docket: For access to the docket to read background documents or comments, go to <http://www.regulations.gov> at any time or Room W12-140 on the ground level of the West Building, 1200 New Jersey Avenue SE., Washington, DC, between 9 a.m. and 5 p.m., e.t., Monday through Friday, except Federal holidays. The FDMS is available 24 hours each day e.t., 365 days each year. If you want acknowledgment that we received your comments, please include a self-addressed, stamped envelope or postcard or print the acknowledgement page that appears after submitting comments online.

Privacy Act: In accordance with 5 U.S.C. 553(c), DOT solicits comments from the public to better inform its rulemaking process. DOT posts these comments, without edit, including any personal information the commenter provides, to <http://www.regulations.gov>, as described in the system of records notice (DOT/ALL-14 FDMS), which can be reviewed at <http://www.dot.gov/privacy>.

FOR FURTHER INFORMATION CONTACT: Ms. Christine A. Hydock, Chief, Medical Programs Division, (202) 366-4001, fmcsamedical@dot.gov, FMCSA,

Department of Transportation, 1200 New Jersey Avenue SE., Room W64-224, Washington, DC 20590-0001. Office hours are 8:30 a.m. to 5 p.m., e.t., Monday through Friday, except Federal holidays. If you have questions regarding viewing or submitting material to the docket, contact Docket Services, telephone (202) 366-9826.

SUPPLEMENTARY INFORMATION:

I. Background

Under 49 U.S.C. 31136(e) and 31315, FMCSA may grant an exemption from the FMCSRs for a two-year period if it finds "such exemption would likely achieve a level of safety that is equivalent to or greater than the level that would be achieved absent such exemption." The statute also allows the Agency to renew exemptions at the end of the two-year period.

The 43 individuals listed in this notice have requested an exemption from the diabetes prohibition in 49 CFR 391.41(b)(3). Accordingly, the Agency will evaluate the qualifications of each applicant to determine whether granting the exemption *will achieve the required level of safety mandated by statute*.

The physical qualification standard for drivers regarding diabetes found in 49 CFR 391.41(b)(3) states that a person is physically qualified to drive a CMV if that person:

Has no established medical history or clinical diagnosis of diabetes mellitus currently requiring insulin for control.

The Agency established the current requirement for diabetes in 1970 because several risk studies indicated that drivers with diabetes had a higher rate of crash involvement than the general population.

FMCSA established its diabetes exemption program, based on the Agency's July 2000 study entitled "A Report to Congress on the Feasibility of a Program to Qualify Individuals with Insulin-Treated Diabetes Mellitus to Operate in Interstate Commerce as Directed by the Transportation Act for the 21st Century." The report concluded that a safe and practicable protocol to allow some drivers with ITDM to operate CMVs is feasible. The September 3, 2003 (68 FR 52441), **Federal Register** notice in conjunction with the November 8, 2005 (70 FR 67777), **Federal Register** notice provides the current protocol for allowing such drivers to operate CMVs in interstate commerce.

FMCSA notes that section 4129 of the Safe, Accountable, Flexible and Efficient Transportation Equity Act: A Legacy for Users requires the Secretary to revise its diabetes exemption program established on September 3, 2003 (68 FR

APPENDIX B

Section 301 Investigation: China's Acts, Policies, and Practices Related to Technology Transfer,
Intellectual Property, and Innovation
Off-Camera Hearing to be held at the U.S. International Trade Commission
500 E Street SW., Washington DC 20436
October 10, 2017, 9:30 a.m.

Panel One

1. Richard Ellings, Commission on the Theft of American Intellectual Property
2. Stephen Ezell, Information Technology and Innovation Foundation
3. Erin Ennis, U.S. China Business Council
4. Owen Herrstadt, International Association of Machinists and Aerospace Workers

Panel Two

1. Juergen Stein, SolarWorld Americas
2. Daniel Patrick McGahn, American Superconductor Corporation
3. William Mansfield, ABRO Industries

Panel Three

1. Scott Partridge, American Bar Association, Intellectual Property Law Section
2. Scott Kennedy, Center for Strategic & International Studies
3. JIN, Haijun, China Intellectual Property Law Society

Panel Four

1. CHEN, Zhou and LIU, Chao, China Chamber of International Commerce
2. XU, Chen and LIU, Xinze, China General Chamber of Commerce
3. John Tang, Esq. and JIANG, Qi, DHH Law Office
4. WANG, Guiqing, Chamber of Commerce, Import and Export of Machinery

APPENDIX C

Section 301 Investigation of China’s Technology Transfer, Intellectual Property, and Innovation-Related Acts, Practices, and Policies: Summary of Public Submissions

American Apparel and Footwear Association (AAFA)

AAFA is a national trade association that represents companies and suppliers in the apparel, footwear, and other sewn products industries competing in the global market. AAFA indicates that the Section 301 investigation should identify areas where China has fallen short of its IPR commitments, and it underscores that the sale of counterfeit products on Chinese e-commerce sites is widespread. AAFA draws attention to parasite brands, which it describes as “counterfeit variants” and which imitate brands and sell counterfeit versions of products in China. AAFA states that China’s first-to-file trademark system leads to inadequate protections that exacerbate the problem. AAFA submits that Chinese laws and policies largely ignore the rights of patent owners by allowing or even requiring them to transfer knowledge to competitors, SOEs, or other parties.

American Bar Association Intellectual Property Law (ABA IPL) Section

The ABA IPL Section provided comments in writing and at the hearing, indicating that IPR protections in China had improved in recent years but that widespread deficiencies remain. A major concern is that the Chinese government effectively forces technology transfer via the imposition of mandatory licensing terms, which may include terms on ownership in improvements, indemnifications and others. The ABA IPL Section adds that a lack of trade secret protections in China is a longstanding concern of U.S. companies, citing instances in which U.S. companies brought trade secret actions in Chinese courts and at the U.S. International Trade Commission based on allegations of trade secret misappropriations occurring in China.

Furthermore, the IPL section also identifies a range of issues with respect to trademark, copyright, and patent protections. According to the IPL section, these issues have received inadequate attention and resources from the Chinese government, and are exacerbated by Chinese copyright laws that fall short of international norms. Although several important laws and regulations have been passed by the Chinese government to enhance patent protection, additional improvements must be made to meaningfully protect the rights of patent holders. The IPL Section identifies various obstacles to U.S. patent holders attempting to pursue patent infringement actions in China.

American Bridal & Prom Industry Association, Inc. (ABPIA)

ABPIA is a non-profit, nationwide trade-association that represents members of the formalwear industry, including designers, manufacturers, retailers, and trade publications. ABPIA submits that its members are seriously harmed by the sale of counterfeit goods on “thousands” of e-commerce websites largely based in China, which target U.S. customers, including by using U.S. manufacturers’ trademarks, and original and proprietary marketing

images. ABPIA also states that counterfeit goods circumvent customs duties by being falsely designed as “gifts.” ABPIA recommends that USTR widen the scope of its 301 review to examine new legislation, more effective border controls, and restricting flows to the Chinese bank accounts of counterfeiters.

ABRO Industries

ABRO provided comments in writing and at the hearing, and is a small American company affected by counterfeits emanating from China. The company manufactures non-electronic consumer goods in the United States and China and sells third country markets. ABRO submits that China has received insufficient acknowledgment for its anti-counterfeiting efforts, adding that ABRO was ultimately successful in combatting the theft of its IP by adapting to the Chinese system and working closely with regional and provincial governments in China.

American Foundry Society (AFS)

AFS is a trade and technical association for the North American metal-casting industry, with more than 8,000 members representing nearly 2,000 metal-casting firms, suppliers, and customers. Many AFS members have been harmed by Chinese governmental practices in the broader metal-casting industry. China is the largest producer of all types of metal-castings, and many Chinese foundries are SOEs, which receive significant levels of both direct and indirect financial support from the Chinese government. Furthermore, the Chinese government both directly and indirectly influences commercial decisions by SOEs. Collectively, these government actions have enabled Chinese foundries to produce metal-castings at significantly lower prices than can be produced by AFS members. AFS members are additionally concerned by the implementation and localization targets published in the Made In China 2025 industrial plan. AFS submits that Chinese policies and financial supports to MIC 2025 target industries will benefit Chinese manufacturers over foreign firms, making it increasingly difficult for AFS firms to compete. Finally, AFS states that its members have suffered from investment caps in China pursuant to the *Catalogue Guiding Foreign Investment*, which forces U.S. companies to engage in joint ventures with Chinese companies in the agricultural processing, automotive, and telecom industries. These requirements create opportunities for both the Chinese government and Chinese stakeholders to request concessions like technology transfer from foreign companies during negotiations.

American Chamber of Commerce in Shanghai (AmCham)

AmCham is an independent business chamber with more than 3,000 members from over 1,500 companies, including 75 percent of American Fortune 500 companies with operations in China, along with hundreds of smaller companies. AmCham reports that its members face a difficult policy environment in China, with forced technology transfer, limited market access, and basic fairness issues increasingly shifting the local market in favor of Chinese companies. AmCham states that the Chinese government uses both implicit and explicit actions to create an unequal playing field for U.S. companies. Member companies have complained of insufficient IP protections and tech transfer pressures in the form of product approval regulations and joint venture requirements, as well as pressure to demonstrate “Good Corporate Citizenship” by

transferring new business models and technologies to Chinese entities. AmCham submits that China uses its considerable resources and influence to create an unfair advantage for its domestic companies, and these practices have made it more difficult to both operate in China and grow American companies.

American Chemistry Council (ACC)

ACC is an organization that represents the leading companies engaged in the business of chemistry. Many of ACC's members have complained of significant difficulties in bringing their products to the Chinese markets. When exporting chemicals to China, companies have been required to disclose an amount of proprietary information sufficient for product duplication. As a result, ACC members' IP has been stolen by Chinese companies, who then recreate the products and sell them at lower prices. Additionally, ACC submits that the Chinese government has engaged in both unreasonable and discriminatory practices. These include discriminatory patenting laws and the failure to pursue criminal prosecution of Chinese companies that steal IP.

American Superconductor Corporation (AMSC)

AMSC submitted comments in writing and testified at the hearing, and is an American energy technologies company that provides wind turbine designs, systems, and engineering services to reduce the cost of wind energy. AMSC experienced the theft of its intellectual property by a Chinese SOE, Sinovel Wind Group. AMSC explains that in 2007 it began supplying core electrical components and software to Sinovel. Over the course of their relationship, AMSC discovered that Sinovel had bribed an AMSC employee to steal technology from a U.S. server. AMSC submits that the theft is substantiated by emails and Skype messages that demonstrate the actual IP transfer and involvement in the cyber-theft by senior-level Sinovel officials. As a result, AMSC believes that over 8,000 wind turbines amounting to 20 percent of China's turbines are running on stolen AMSC software; and importantly, most of the wind turbines operating on stolen software are owned by large state-owned enterprises. In response to the theft, the U.S. Department of Justice brought still-pending criminal actions in the United States, while AMSC has pursued various civil legal actions in China. AMSC expresses concern that it has received fair and equitable consideration in China, as Chinese courts dismissed several of its actions for an asserted lack of evidence. AMSC states that it has lost over \$1.6 billion in company value, along with 70 percent of its workforce since March 2011 as a direct consequence of the stolen technology.

Biotechnology Innovation Organization (BIO)

BIO is a non-profit organization comprised of 1,000 biotechnology companies, academic institutions, state biotechnology centers, and related organizations in almost all 50 states and a number of foreign countries. BIO members have suffered from IP theft by Chinese companies, resulting in the production of copycat products sold in China. BIO members generally share concerns in China over IPR protection and enforcement; market access challenges; innovation policies that discriminate against foreign companies; lack of transparency in rule administration; lack of meaningful industry engagement in the rules-making process; regulatory requirements

and technical standards that are more trade restrictive than necessary; and restrictive pharmaceutical pricing policies that blunt innovation in the global bioscience industry.

Bonumose Biochem LLC

Bonumose Biochem is a small, start-up business in the biochemical industry. Bonumose describes an instance of IP theft it experienced after it purchased 100 percent of the IP rights to the production of a chemical compound. According to Bonumose, an individual with ties to the Chinese government illegally revealed confidential information to the Tianjin Institute of Industrial Biotechnology (TIIB), a division of the Chinese government-owned Chinese Academy of Sciences. Bonumose submits that it is now unable to obtain a patent in China for its lawfully acquired intellectual property.

Lee Branstetter

Lee Branstetter is a Professor of Economics and Public Policy at Carnegie Mellon University. According to Prof. Branstetter, the Chinese government and its state-owned enterprises have over the past few decades extracted technology from foreign companies in a premeditated and systematic fashion, with the aim of displacing leading multinational firms with Chinese firms in global markets. He adds that technology transfer in China is neither voluntary nor market driven, but occurs under duress. Prof. Branstetter posits that foreign firms must transfer technology or be excluded from the world's largest market and multinationals that complain likely retribution. He adds that China is adept at playing foreign companies against one another, as a firm's refusal to transfer technology may lead to a market opportunity for a foreign competitor. He states further that numerous studies demonstrate that China's enforcement of its intellectual property laws is uneven and biased against foreign firms. To combat these problems, Branstetter proposes a number of legal and policy initiatives to discourage the Chinese government from engaging in these practices.

BSA | The Software Alliance (BSA)

BSA is the leading trade association representing the global software industry before governments and in the international marketplace. Both BSA and its members have significant concerns about Chinese policies and practices that limit Chinese market access and reduce the competitiveness of BSA members operating in China. Four primary areas of concern are foreign direct investment restrictions, including policies relating to Value-Added Telecommunications Services (VATS); restrictions on cross-border data transfers; disclosure requirements for source code and enterprise standards; and the development and imposition of China-specific technical standards. BSA additionally states that market access barriers work in tandem with pressures to transfer technology or intellectual property. As a result, many companies may only access the Chinese market in exchange for putting their intellectual property at risk. This amounts to U.S. businesses being forced to choose between protecting their IP or being closed out of the world's largest market for technology products.

Jack Chang

Jack Chang is an attorney with years of professional experience working in China. He serves as the Chairman of the Quality Brands Protection Committee and is presently Special Counsel to L Brands International. Previously, he served as Senior IP Counsel for Asia for General Electric from 2006 to 2014, and prior to that was in the in-house legal department of Johnson & Johnson where he helped set up the company's Asia/Shanghai Office. In his submission, Mr. Chang indicates that trademark counterfeiting, bad faith trademark registrations, copyright piracy, and the theft of trade secrets remain challenging for some businesses in China, but outlines ways in which the Chinese government has attempted to improve the IP landscape. Furthermore, Chang asserts that he has not encountered laws, policies, or practices that force technology transfer and that such transfer occur based on business considerations.

China Chamber of Commerce for Import and Export of Machinery and Electronic Products (CCCME)

CCCME submitted comments in writing and at the hearing, and is an independent, non-profit membership-based industry association based in China. CCCME and its members believe that Chinese and U.S. companies have experienced improved IP protections in China in recent years. CCCME characterizes assertions of Chinese government-driven tech transfer, forced licensing arrangements, and acquisitions as unfounded. CCCME contends that any joint ventures and transfers of technology are done free of government interference and based on market conditions. CCCME asserts that Chinese laws are not unreasonable or discriminatory because they apply equally to U.S. and Chinese companies. CCCME adds that because Chinese firms are also targeted by cyber-attacks, it is improper to blame the Chinese government for those attacks. CCCME encourages the USTR to avoid undertaking unilateral action against China and to discontinue the Section 301 investigation.

China Chamber of International Commerce (CCOIC)

CCOIC submitted comments in writing and at the hearing, and is a national chamber of commerce representing enterprises, associations, and organizations that engage in international commercial activities in China. CCOIC expresses concern that the Section 301 investigation is unilateral in nature, and cautions that action pursuant to the investigation may trigger a trade war harming businesses and individuals in both countries. CCOIC contends that there is no evidence that Chinese acts, policies, or practices are discriminatory or unreasonable, as IP protections and the overall business environment in China have substantially improved, and the Chinese government treats Chinese and foreign firms equally. CCOIC states there is no evidence that the Chinese government pressures foreign companies to transfer their technology to Chinese companies. The Chinese central government has specifically prohibited local governments from forcing technology transfer and CCOIC therefore believes that any decision to transfer or license technologies to Chinese parties is done freely pursuant to market considerations. CCOIC submits that there is no evidence that a Chinese measure governing inbound technology licensing conflicts with market-oriented principles. CCOIC contends that Chinese investment and acquisition in U.S. companies is done pursuant to normal commercial behavior without government directives. CCOIC maintains that there is no evidence that either the Chinese government or Chinese military deployed hackers to invade U.S. commercial networks for commercial interests.

China Enterprise Confederation (CEC)

CEC is a national Chinese economic organization that functions as a link between the Chinese government and Chinese businesses, with membership that consists of enterprises, entrepreneurs, and business associations. CEC maintains that China's acts, practices, and policies are neither unreasonable nor discriminatory. CEC indicates that U.S. companies are not forced to transfer technologies to Chinese companies, and that even when faced with investment restrictions, they can instead license their technologies to Chinese companies. CEC adds that China's policies and practices are consistent with international standards, and that China has significantly improved the broader business climate through better IP protections and increased market access.

China General Chamber of Commerce (CGCC)

CGCC submitted comments both in writing and at the hearing. CGCC is a U.S. non-profit organization that represents Chinese enterprises operating within the United States. CGCC contends that the Section 301 investigation is misguided because the acts, policies, and practices of the Chinese government are neither unreasonable nor discriminatory. CGCC outlines legal and policy reforms that strengthen IP protections in China and adds that the government has undertaken additional measures for IP protection, including the establishment of specialized IP courts and an action plan joined by 12 governmental bodies titled "The Action Plan for Protecting Foreign Companies' Intellectual Property Rights". This plan is the first of its kind, and chief amongst its goals is the implementation of harsh punishments for violations of IP rights and piracy laws.

CGCC states that U.S. companies are overwhelmingly treated as equals to Chinese domestic companies. CGCC contends that China's preferential procurement standards are not uncommon at the international level and it adds that any technology transfers or joint ventures are undertaken in good faith and free of Chinese government pressure. CGCC adds that Chinese firms operate independently of government influence, and make decisions—including those relating to acquisitions—consistent with management structures comparable to those found in U.S. firms. CGCC concludes that it is unable to comment about cyber-theft and the role that the Chinese government may play because none of CGCC's member companies have been affected.

China Intellectual Property Law Society (CIPL)

CIPL commented in writing and at the hearing, submitting that there is no basis for a determination that Chinese laws or regulations are either unreasonable or discriminatory for purposes of the Section 301 investigations. CIPL emphasizes that China's legal system is profoundly transformed, accompanied by strengthened IPR protections for both Chinese and foreign firms. CIPL provides a detailed outline of the evolution of China's IP laws and reforms beginning in the 1980s. CIPL acknowledges that further steps to strengthen IPR enforcement should be taken and it addresses a number of U.S. concerns reflected in the Section 301 investigation. CIPL also submits that there is no direct evidence of adverse impacts caused by

TIER on cross border technology transactions, and that Article 24 of TIER is consistent with free market standards of fairness.

Computing Technology Industry Association (CompTIA)

CompTIA is a non-profit trade association that represents the information technology industry. CompTIA submits that U.S. companies confront significant challenges when trying to sell IT products in China. China is implementing a number of high-level programs in an opaque fashion, which in some cases amount to discriminatory import substitution plans. CompTIA identifies a number of other protectionist policies that harm U.S. IT companies including the forced transfer of technology and IP to Chinese joint venture partners, weak enforcement against widespread IP theft, discrimination against foreign IP under the guise of national security, barriers imposed via China-specific standards, cloud computing and telecommunications market access barriers, and massive funding and subsidy programs for the development and acquisition of information and communications technologies.

Coalition of Service Industries (CSI)

CSI is the leading industry association devoted exclusively to helping a broad spectrum of America's service businesses and workers compete in world markets. CSI submits that U.S. firms face increasingly difficult competitive circumstances in China, which uses opaque rules, licensing requirements, discriminatory practices, selective regulatory enforcement, and other barriers to support Chinese firms at the expense of foreign competition. CSI adds that in spite of various commitments by China's government, the Chinese business environment continues to present significant challenges for U.S. services suppliers including in the form of localization requirements, equity caps that trigger technology transfer, and the forced submission of proprietary source code and encryption measures to Chinese officials. Affected sectors include data and technology, telecommunications, banking and securities, insurance, and express delivery.

Consumer Technology Association (CTA)

CTA represents entrepreneurs, technologists, and innovators operating within the consumer technology industry. Their membership includes companies from every facet of the consumer technology industry, including manufacturers, distributors, developers, retailers, and integrators. CTA states that its members have encountered a range of market barriers that have negatively impacted business operations in China. CTA members suffer from inadequate IPR protections in China, which contribute to rampant trademark counterfeiting and copyright piracy. Additionally, members have reported that technology transfer or IP transfer to Chinese parties is necessary in exchange for market access. CTA acknowledges that it is unaware of official laws "on the books" that require technology transfer, it reports that officials pressure foreign companies to transfer technology through oral communications to limit the creation of written evidence. CTA adds that "secure and controllable" standards discriminate against foreign technology; and although CTA acknowledges that some "secure and controllable" laws have been repealed, it submits that others still are simply re-named or re-implemented at the provincial or local levels. CTA states that it has received "numerous" reports of individuals

with ties to the Chinese government who have hacked U.S. companies' computer networks to steal proprietary data and IP with the intent of assisting Chinese industry.

Dais Analytic Corporation (Dais)

Dais creates nanotechnology-based applications for heating and cooling, water treatment, and energy storage. It commends China for improvements in IPR protections and enforcement, but identifies key areas for improvement, including IPR protections embodied in employment agreements and the need for public disclosure of all rules and regulations governing joint ventures. Dais explains that a potential Chinese joint venture partner cited the requirements JV rules and regulations that were not clearly and publicly outlined to pressure Dais to disclose its sensitive IP, which the Chinese company used improperly.

DHH Washington DC Law Office (DHH)

DHH provided comments in writing and at the hearing, and is the Washington, D.C. branch of the Beijing DHH law firm, which focuses primarily on servicing U.S. and Chinese clients on international trade matters and cross-border investment. DHH provides background on provision of China's patent, copyright, and trademark laws, and notes the creation of specialized intellectual property courts in China. DHH asserts that Chinese practices related to tech transfer, IP protections, and innovation are not unreasonable or discriminatory and do not burden or restrict U.S. commerce. DHH submits that IP protections have significantly improved over the last few decades. DHH also contends that Chinese acquisitions of U.S. companies are market driven and are not directed by the Chinese government.

International Association of Machinists and Aerospace Workers, (IAM) AFL-CIO

IAM, which provided comments in writing and at the hearing, represents several hundred thousand active and retired workers throughout North America. IAM contends that the U.S. transfer of technology to China has negatively affected U.S. aerospace workers. China has relied on transferred production and other technology from Western companies to develop its domestic aerospace industry, and in the process, China has pitted Western competitors against one another for access to China's growing aviation market. This dynamic negatively impacts the U.S. industrial base in different, but related ways, including the loss of jobs and skills associated with the transferred technology and production, additional job losses occurring as China uses transferred technologies to develop its own aerospace companies that will compete directly with U.S. aerospace firms and their suppliers, and job losses in technological production.

Commission on the Theft of Intellectual Property (IP Commission)

The IP Commission provided comments in writing and at the hearing, and is an independent and bipartisan initiative of American leaders in both the private and public sectors formed in 2012 to document and assess the causes, scale, and dimensions of international intellectual property theft. The IP Commission finds China to be the worst infringer of American IP, stemming primarily from Chinese policies and laws. While the IP Commission identifies recent improvements including specialized IP courts and a new IP enforcement "Action Plan," IP

Commission data and other studies show a strong link between China's stated industrial priorities and IP theft.

Additionally, the Commission cites examples of "brazen" Chinese attempts to steal American intellectual property, including the targeting of American industrial tradeshow to elicit sensitive information from firm representatives; the systematic tracking of the National Science Foundation grantees and research of scientists at universities across the nation; the attempted theft of Medrobotics intellectual property; the theft and attempted sale of IBM's source code by a former IBM software engineer to China's National Health and Family Planning Commission; the attempted acquisition of U.S. nuclear secrets from the Tennessee Valley Authority by a Chinese national and China Nuclear Power, an SOE; and the hacking of the computer networks of major U.S. defense contractors resulting in the theft of sensitive military and export controlled data by a Chinese national. In the view of the IP Commission, these examples collectively suggest rampant Chinese theft of American IP and sensitive information.

The Commission indicates that China effectuates forced technology transfer and theft including via industrial espionage, conditioning market access on technology transfer, tactical employment of vague regulations and laws to pressure U.S. firms into transferring their IP to avoid litigation, and localization requirements that force U.S. firms to house sensitive data on the Chinese mainland. According to the IP Commission, these practices inflict significant damage to every sector of the U.S. economy. While precise quantification of these damages is difficult, the Commission draws on a variety of data sources, proxies, and economic models to estimate that Chinese theft of American IP currently costs between \$225 billion and \$600 billion annually.

Information Technology Industry Council (ITI)

ITI is a policy and advocacy organization for innovation companies. ITI submits that China is a crucial, yet difficult market for companies in the technology sector. ITI points to restrictions on cross-border data flows, requirements for disclosure of IP, and discrimination against U.S. cloud services providers as creating significant negative impacts on U.S. technology companies. ITI adds that the *Cybersecurity Law*, along with subsequent guidance and regulations, is particularly problematic for U.S. technology companies. In particular, ITI states that firms in the cloud services industry may be forced to transfer valuable IP, surrender use of their brand names, and hand over operation and control of their businesses to Chinese companies in order to participate in the Chinese market. ITI provides that initiation of a JV may be valuable under certain circumstances, but that JV requirements in China are problematic when required and when the Chinese partner's control over the JV is non-negotiable. ITI raises concerns over Chinese standard setting that is inconsistent with pre-established international standards, along with "secure and controllable" standards that discriminate against foreign technologies.

Information Technology & Innovation Foundation (ITIF)

ITIF provided comments in writing and at the hearing, and submits that China has systematically ignored the spirit—and often the letter—of its commitments under its WTO obligations. According to ITIF, in China's quest to become a global innovation leader, it assimilates foreign technologies through tech transfer inducements, mandates joint ventures, and

conditions market access in exchange for transfer of important IP. ITIF further submits that the Chinese state directs M&A and FDI activity to target and acquire foreign enterprises with leading technologies in key industrial sectors, ranging from semiconductors to manufacturing. ITIF adds that these acquisitions and investment in foreign companies are often orchestrated by SOEs to serve strategic state goals. ITIF states that Chinese acquisitions are complemented by aggressive cyber-theft programs to steal key foreign technologies and knowledge. ITIF provides that together, these mercantilist policies pose a direct and existential threat to the U.S. advanced technology industry as a whole, and have caused an estimated 3.4 million American job losses from 2001 to 2015.

Scott Kennedy, Center for Strategic & International Studies

Scott Kennedy commented in writing and at the hearing, and is the Deputy Director, Freeman Chair in China Studies and the Director for the Project on Chinese Business and Political Economy at CSIS. In his submission, Kennedy stresses the widespread impact that Chinese IP policies and practices have on the structure of supply chains and the health of business models. China's broad industrial policy is to drive its economy up the value-added chain and toward advanced technologies. To effectuate these industrial goals, China has developed policies that foster technological creation and innovation, and encourage foreign acquisitions through both cooperative and coercive means. While Mr. Kennedy acknowledges that unilateral penalties may be appropriate, he maintains that any action undertaken by the United States should be accompanied by: 1) long-term engagement with stakeholders in China; 2) support for international fora like the WTO, that develop IP standards and adjudicate disputes; 3) collaboration with U.S. allies and other nations harmed by Chinese practices; and 4) strengthening of the legal, educational, and commercial environment for IP protection and development within the United States.

Dr. Catherine Lin-Hendel

Dr. Lin-Hendel is a small business owner who has experienced patent infringement by Chinese SOEs. Dr. Lin-Hendel submits that the value of her intellectual property which has been stolen is upwards of hundreds of millions of dollars. She further states that all of the infringing entities' websites—which utilize her intellectual property—are accessible from the United States. Dr. Lin-Hendel also states that she has attempted to resolve the dispute with the infringing entities, but has been unable to do so in China. In addition to her written submission, Dr. Lin-Hendel provides a number of letters, emails, and tables outlining her various patents which have been infringed.

The Los Angeles Area Chamber of Commerce (LACC)

LACC is a business association representing companies in the greater Los Angeles area. LACC recommends that the USTR drop the 301 investigation, and instead address IP concerns in a "more precise and effective" manner that will not negatively affect the positive aspects of the U.S. relationship with China.

James Lewis, Center for Strategic and International Studies

CSIS is a bipartisan, non-profit policy research organization. James Lewis submits on behalf of CSIS that the central issue with respect to the 301 investigation is not IP theft, but the unfair treatment of U.S. companies in China. Mr. Lewis outlines the range of policy tools utilized by the Chinese government to build “national champions” and drive economic growth. These include the licit and illicit acquisition of foreign technologies, generous subsidies and non-tariff barriers, abuse of power by the Chinese government to extract concessions or block foreign competition in the Chinese market, forcible coproduction policies, and IP theft and cyber espionage. According to Mr. Lewis, IP theft and cyber-espionage are of particular concern because they play an important role in the acquisition of technologies necessary to drive the broader Chinese industrial policy. Additionally, Mr. Lewis provides that many companies have been complacent in pushing back against illicit Chinese activity for fear of retribution; and many do not believe the U.S. will take action to support them against Chinese retaliation.

Motor & Equipment Manufacturers Association (MEMA)

MEMA represents 1,000 vehicle suppliers that manufacture and remanufacture new original equipment and aftermarket components and systems for use in passenger cars and heavy trucks. MEMA submits that China is a large and important trading partner for its member companies but that the China market remains a challenge for motor vehicle suppliers. MEMA states that policies and practices that place IPR at risk include technology localization requirements stemming from with government industrial planning; a pending ban on the use of Virtual Private Networks; China’s cybersecurity laws; its system of duties and value added taxes that is increase usage of counterfeit products; and the inadequate enforcement of IP laws.

Michelman

Michelman is a family-owned small business that develops and manufactures materials for coatings used in printing, food and medical packaging, advanced composite materials, and industrial manufacturing. Michelman states that the IPR landscape in China has improved, and that violations of IP laws in China no longer take place with impunity. Michelman adds that, a number of challenges remain in IP protection in China. In 2016, Michelman discovered that four Chinese companies were selling primer for digital printers with strikingly similar profiles to the primer that Michelman had sold in China for several years. After conducting an analysis of the primers, Michelman suspects that the products sold by the Chinese companies are in fact relabeled Michelman primers. At this stage, Michelman has only consulted with outside legal counsel, but believes that to take even low-level action (e.g. a cease and desist letter) against the suspected companies could result in crippling retaliatory legal action.

National Association of Manufacturers (NAM)

NAM is the largest manufacturing association in the United States, representing more than 14,000 businesses of all sizes in every industrial sector and in all 50 states. NAM submits that the Chinese market is a consistent trouble spot for U.S. manufacturers, as they face a range of market-distorting and harmful industrial policies. These including investment restrictions, licensing and approval processes, localization requirements, measures that encourage technology

transfer and restrict cross-border data flows, weaknesses in trade secrets protections, and policies and enforcement practices in IP-related areas such as standards-setting and competition law.

National Foreign Trade Council (NFTC)

NFTC represents more than 200 companies, with membership spanning the U.S. economy. NFTC states that overall IP landscape in China is improved, but that foreign firms and investors continue to face innovation-related difficulties in China. NFTC outlines challenges that disadvantage foreign firms including the indigenous innovation product accreditation system, measures that preclude U.S. companies from offering cloud services in China except by transferring valuable IP and control of operations to Chinese companies, poor trade secrets protections, disclosure requirements in standards creating processes, technology licensing measures, and others.

Congressman Bill Pascrell

Congressman Pascrell is the Ranking Member of the House of Representatives Ways and Means Subcommittee on Trade. He expresses the concern that a number of Chinese policies and practices diminish IP rights in China, including burdensome approval requirements for the import and export of clinical investigational materials, and discrimination against innovators lacking localized manufacturing capacities. Congressman Pascrell calls on the Chinese Food and Drug Administration to establish a patent dispute resolution mechanism prior to the marketing of generic competition and spotlights increasing sales of falsified and counterfeit medicines in China that not only violate intellectual property rights but pose health and safety risks.

Pharmaceutical Research and Manufacturers of America (PhRMA)

PhRMA represents companies that invent, manufacture, and distribute valuable medicines globally. In its submission, PhRMA states that the pharmaceuticals industry holds longstanding concerns over lack of regulatory data protection, ineffective patent enforcement, and inconsistent patent examination guidelines. PhRMA outlines a series of proposed Chinese policies and reforms in regulatory data protection, patent enforcement, and patent examination that may address its member companies' longstanding concerns. It contends that continued engagement by the U.S. and other stakeholders will help ensure the full implementation of these necessary reforms.

Rhodium Group

Rhodium is an economic research firm that combines policy experience, quantitative economic tools and on-the-ground research to analyze disruptive global trends. Rhodium outlines key findings from its long-term study of Chinese FDI in the United States. Rhodium notes that Chinese investment has significantly increased in the U.S., and has spread to all sectors of the U.S. economy, and it adds that while data do not support any definitive conclusions about causality between industrial policy and Chinese investment patterns in general, the relationship between industrial policy and targeted investment in individual sectors is readily apparent. Rhodium cites the example of the semiconductor industry, where both

private investors and Chinese government funds have embarked on an unprecedented buying spree of assets along the semiconductor production chain in Asia, Europe, and North America. Rhodium also states that further analysis of drivers of Chinese FDI must be undertaken to better understand the relationship between the recent and extraordinary deployment of state financing with “traditional” FDI transactions.

Semiconductor Industry Association (SIA)

SIA represents the U.S. semiconductor industry, which is one of America’s top export industries. SIA asserts that China pressures U.S. semiconductor companies to develop their IP within China, or transfer their IP to Chinese entities. This practice has long concerned U.S. firms across sectors, and has continued to plague the semiconductor industry in spite of a decade of dialogue on this issue. SIA provides that China has made progress in conforming to the rules-based trading system since its WTO accession, however SIA’s member companies continue to experience challenges in China. SIA states that Chinese state directed subsidies in the form of investment funds, credit lines, and grants target companies and technologies at all levels of the semiconductor development and fabrication lifecycle. SIA adds that semiconductor companies face pressure to disclose or transfer their IP. This pressure is exhibited in a variety of laws, rules, and policies that may induce or force the localization of semiconductor design or manufacturing processes to achieve compliance and induce technology transfer as a condition of market access. SIA points to further challenges semiconductor firms have experienced, including secure and controllable requirements, the imposition of non-market terms in licensing and technology contracts, widespread counterfeiting, and the theft or misappropriation of trade secrets and other IP.

Skadden, Arps, Slate, Meagher & Flom, LLP (Skadden)

Skadden’s submission is on behalf of a client that has operated in China and has suffered from intellectual property theft. The theft caused a loss of millions of dollars of sales, market share, good will, and reputation. The submission contains extensive business confidential information and thus has received confidential treatment.

SolarWorld

SolarWorld submitted comments in writing and at the hearing. SolarWorld is one of a group of U.S. entities targeted by five Chinese military hackers in May 2014. SolarWorld submits that the Chinese government-backed theft of its intellectual property inflicted a particularly acute injury to the company, along with other U.S. solar manufacturers. SolarWorld provides that government-subsidized Chinese solar cells and panels that benefitted from the stolen trade secrets have flooded the U.S. market since 2012. According to SolarWorld, this has driven nearly 30 U.S. manufacturing firms out of business and has left the U.S. solar manufacturing industry on the brink of collapse. SolarWorld adds that the DOJ indictment against Chinese military hackers outlines the scope of the hack, along with the degree of involvement of Chinese SOEs, and the orchestrated timing of the hack with the dumping of solar panels into the U.S. market.

Stewart and Stewart

Terence P. Stewart is the managing partner of Stewart and Stewart, a firm that has represented various U.S. manufacturing and agricultural industries in trade proceedings and negotiations. Stewart submits that the United States should be deeply concerned about China's laws, regulations, and practices that distort trade flows and restrict foreign technology leaders, leading to unsustainable trade imbalances. Stewart describes industries that have been subject to technology transfer requirements, including in the automotive, semiconductor, and high speed rail sectors. Technology transfer requirements are imposed on firms in these industries through forced joint venture requirements and the imposition of technology licensing terms. Stewart notes the elimination of explicit technology transfer requirements in the Chinese automotive sector, but submits that subsequently enacted policies achieve technology transfer using less explicit means. Stewart provides a detailed outline of China's WTO accession obligations, and reiterates concerns laid out in previous USTR reports on China.

Telecommunications Industry Association (TIA)

TIA represents approximately 250 manufacturers and suppliers of high-tech telecommunications networks and services in the U.S. and around the world. TIA members are concerned over China's growing slate of security rules that disadvantage U.S. exporters. In its submission, TIA outlines specific policies and their attendant authorizing legislation, that are harmful to its members. These include: security testing of ICT products by the Chinese government as a requirement for market entry; equity caps and operational restrictions on cloud computing; restrictions on cross-border data flows; standards-setting approaches that depart from global norms; and the implementation of its competition policy. TIA adds that China is increasingly excluding foreign ICT equipment from many Chinese information networks in a variety of industries.

US-China Business Council (USCBC)

USCBC, which testified at the hearing, represents 200 American companies engaged in business across all industries and sectors in China. In its submission, USCBC references a number of surveys it conducted with its member companies that demonstrate significant concerns over technology transfer and IP protections in China. USCBC firms report slow improvement in Chinese IP protections, and many also face acute tech transfer pressure. USCBC firms view China's IP protections as slowly improving. To effectuate tech transfer, USCBC firms cited the use of opaque and discretionary administrative approval processes, mandatory joint venture requirements, foreign equity limitations, discriminatory government procurement programs, and preferences for localization and domestic IP. USCBC adds that U.S. companies seeking to operate in China face an unbalanced negotiating environment. Although negotiations involving tech transfer or other equity restrictions are generally part of normal business negotiations, USCBC states that Chinese companies have an inherently stronger position relative to their foreign negotiating partners. USCBC recommends that the U.S. should pursue improved IP protections for American firms through reforms of harmful Chinese policies, but urges the USTR to avoid protectionism and seek reforms consistent with market-driven principles.

U.S. Chamber of Commerce

The U.S. Chamber is the world's largest business federation representing the interests of more than 3 million businesses of all sizes, in all sectors and regions, as well as state and local chambers and industry associations. The Chamber submits that insufficient IP protections is consistently one of the top regulatory challenges facing Chamber members. The Chamber outlines a number of core elements of China's regulatory regime that are both restrictive and burden U.S. companies. These include: equity caps that create investment barriers; state sponsored acquisitions of R&D intensive products; administrative licensing procedures which enables the state to influence negotiations between Chinese and foreign companies, resulting in non-market based terms; discriminatory technology licensing policies; discriminatory standards-setting practices; forced security reviews that expose source code and other sensitive IP; and localization requirements that discriminate against foreign companies and make IP vulnerable to exposure. The Chamber further emphasizes that there is a fundamentally asymmetric playing field, where foreign companies face immensely restrictive policies and barriers when trying to operate in China, while Chinese companies face few to no reciprocal barriers when operating in global markets.

United States Council for International Business (USCIB)

USCIB members include top U.S. based global companies and professional services firms from every sector of the economy, with operations in every region of the world. USCIB identifies a range of Chinese government policies and practices that disadvantage U.S. firms relative to their Chinese competitors. Specifically, USCIB submits that China is utilizing its Anti-Monopoly Law in a discriminatory manner to target foreign companies' intellectual property, and as a policy tool to support its national industrial policy objectives. The discriminatory application of this law is aided by procedural inadequacies that make it difficult for companies to mount an effective defense. USCIB additionally points to FDI limitations and joint venture requirements in a number of sectors, which limit competition and encourage the transfer of technology to Chinese companies. USCIB also describes how the *Cybersecurity Law* and related measures disadvantage U.S. companies in the Chinese market.

United States Steel Corporation (U.S. Steel)

U.S. Steel asserts that the Chinese government has been conducting cyber-theft operations in the United States against American companies for years and that U.S. Steel was the subject of Chinese cyber-hacking attacks on the company's network, and another attack involving phishing that resulted in the exfiltration and exploitation of its confidential business information. While U.S. Steel notes that the United States indicted five Chinese military officials for computer hacking and economic espionage in connection with the hacks of U.S. Steel and others, it states that no further action was taken on behalf of the victims. U.S. Steel recommends that the scope of the investigation include how to improve procedures and perhaps trade laws such that victims of cyber-theft can obtain redress.

Wiley Rein, LLP

Wiley Rein is a law firm based in Washington, D.C. Wiley submits that a web of industrial policies is designed to absorb, assimilate, and re-innovate foreign technology and IP to help Chinese firms gain a global advantage across a broad spectrum of industries. Wiley outlines a variety of Chinese policies designed to provide competitive advantages to Chinese firms, including via industrial policy and state support for technology acquisitions, overbroad national security laws and regulations; state-supported theft of trade secrets and other IP, and biased enforcement of the competition law. Wiley concludes that the Chinese government engages in a wide variety of unreasonable and discriminatory policies and practices that significantly burden U.S. commerce by causing U.S. companies to suffer direct harm. Wiley submits that these policies and practices ultimately inhibit companies' ability to invest in future growth and innovation.

YANG Gouhua

Yang Gouhua is a Professor of Law at Tsinghua University in Beijing, China. Prof. Yang submits that the transfer of technology to a Chinese enterprise, and the terms of those transfers are a product of voluntary agreements undertaken by the parties. He further asserts that there is no external intervention which forcibly pressures firms to transfer technology. Prof. Yang also states that non-market based licensing schemes merely safeguard the legitimate rights and interests of licensees, who he asserts hold a weak position in international technology transfer negotiations. Prof. Yang also submits that Chinese acquisitions in the United States are normal commercial activities not subject to the central government's direction, and that both the United States and China should work to strengthen cooperation to combat cybercrime.

Stephen Zirschky

Stephen Zirschky is an attorney with over 30 years of experience working in-house in multinational corporations, and has been engaged in extensive business transactions with Chinese companies since 1994. He states that there is a clear system of discretionary administrative approval processes, along with other restrictions, adopted by China that pressure transfer of IP to Chinese companies and/or SOEs. Mr. Zirschky states that often the language in Chinese licensing and business registration forms are unclear on technology transfer requirements, but officials within regional Chinese centers clarify in person that transfer of technology is expected. Subsequent to the induced technology transfer, governmental agencies or SOEs obtain the technology "for review", and U.S. companies then discover their product has been copied and sold by different Chinese companies. Mr. Zirschky explains that many companies do not come forward to comment on this practice out of fear that they will lose access to the Chinese market.

APPENDIX D

2017 Catalogue Guiding Foreign Investment “Restricted” Category Industries

Sector	Chinese co-investor req.?	Chinese investor control req.?	Specific foreign ownership caps (if specified) and other restrictions
Agriculture, Forestry, Animal Husbandry, Fishery and Related Industries			
1	Selection and breeding of new types of agricultural goods, and production of seeds	X	X
Mining			
2	Exploration and development of oil and natural gas (including coalbed methane, oil shale, oil sands and shale gas)	X (CJVs/EJVs only)	
3	Surveying and mining of special and rare coal	X	X
4	Surveying and mining of graphite		
Manufacturing			
5	Publications printing	X	X
6	Rare earth smelting, separation, and tungsten smelting	X (CJVs/EJVs only)	
7	Manufacture of whole vehicles and special vehicles	X	Chinese parties shall hold no less than 50% of shares. Each foreign party can have max. 2 JVs manufacturing the same type of vehicles (passenger/ commercial/ motorcycle). If foreign co.'s Chinese partner merges with another domestic auto manufacturer, foreign company not bound by the “2 JV” limit
8	Design, manufacture and repair of ships (including subparts)	X	X
9	Trunk, regional aircraft design, manufacturing and maintenance, 3-ton and above helicopter design and manufacturing, ground, surface effect of aircraft manufacturing and unmanned aerial vehicles, manufacture of aircraft for ground or water surface effects; design and manufacture of unmanned aerial vehicle and aerostatics	X	X
10	General aircraft design, manufacture, and maintenance	X (CJVs/EJVs only)	
11	Production of satellite television receiving and broadcasting equipment and key parts		
Electricity, Gas, and Water Production and Supplies			
12	Construction and operation of nuclear power plants	X	X
13	Construction and operation of electricity grids	X	X
14	Construction and operation of gas, heat supply, and water drainage networks in cities with a population of more than 500,000	X	X
Transportation, Shipping, Storage, and Postal Industries			
15	Construction and operation of main line railroad networks	X	X
16	Passenger train transportation companies	X	X
17	Domestic water transport companies / international maritime transport companies	X (Int'l maritime transport cos. are CJVs/EJVs only)	X (Domestic water transport cos.)
18	Construction and operation of civil airports	X	X
19	Public air transport company	X	X
20	General aviation companies – agricultural, forestry, and fisheries-related general aviation companies	X (Ag. / forestry / fisheries-related general aviation cos. must be JVs)	X (Other general aviation cos.)
			Foreign and affiliated enterprise investment not to exceed 25% and the legal representative shall have Chinese nationality Company's legal representative must have Chinese nationality

Information Transmission, Software, and IT Services				
21	Telecommunications companies	X	X	Value-added telecom services: foreign investment ratio no more than 50%, except e-commerce; basic telecom business: Chinese majority control
Wholesale and Retail Trade				
22	Procurement and wholesale of rice, wheat, and corn			
23	Shipping agents	X	X	
24	Construction and operation of gas stations	X	X	Retail operations over 30 chain stores established by the same foreign investor that sell different types and brands from multiple suppliers must have majority Chinese control
Finance and Insurance				
25	Banks	X	X	Individual Chinese commercial banks: no one foreign financial institution or the affiliates it controls or jointly controls as a founder or a strategic investor shall own more than 20%; no combination of foreign financial institutions or the affiliates they control or jointly control as a founder or strategic investor shall own more than 25%
26	Insurance companies	X		Foreign stake in life insurance companies must not exceed 50%
27	Securities companies	X	X	
28	Future trading companies	X	X	
Leasing and Business Services				
29	Market research	X (Generally CJVs/EJVs only)	X (Radio/TV listener/viewership market research must be Chinese majority controlled)	
Scientific Research, Technology Services, and Geological Survey Industries				
30	Survey and mapping companies	X	X	
Education				
31	Pre-school, general, high school, and higher education institutions –	X (CJVs only)	X	Pre-schools, ordinary senior high schools, and higher learning institutions are limited to Chinese parties playing the leading role
Healthcare and Social Work Services				
32	Medical institutions	X (CJVs/EJVs only)		
Cultural, Sports, and Entertainment Companies				
33	Radio and television program production and film production	X (CJVs only)		
34	Construction and management of movie theaters	X	X	
35	Performance agency companies	X	X	

Source: *Catalogue of Industries for Guiding Foreign Investment (2017Amendment)* (NDRC and MOFCOM, Order No. 4, issued June 28, 2017).

Note that the above list reflects all the industries in the “restricted” category. Not all of “restricted” industries are subject to JV requirements. Some “restricted” industries are also included in the “encouraged” list

APPENDIX E

Appendix E: Statement of the Office of IP and Industry Research Alliances (IPIRA) at the University of California, Berkeley

The Office of IP and Industry Research Alliances (IPIRA) at the University of California, Berkeley, licenses its inventions and other IP rights around the world for various purposes, including humanitarian purposes. Companies in China sometimes inform IPIRA that TIER imposes mandatory terms to all entities licensing or importing technologies into China. For the following three reasons the Regents of the University of California (through UC Berkeley) is unable to accept the following terms:

(1) TIER requires the University (the licensor) to guarantee that the University's IP rights do not infringe other IP rights, including those that are owned by third parties. It is not feasible for the University to make this determination. It is the company's own due diligence to perform. Even if the University were to perform a relevant search and analysis in an attempt to meet the requirement, the search and analysis result would immediately become obsolete due to the issuance of patents and/or creation of new IP rights anywhere around the world. In a typical license the search and analysis, i.e., a "freedom to operate analysis" and/or an "infringement analysis" is a duty that falls to the licensee (based on the products it intends to commercialize), not the licensor. The University's license states that it makes no representation that practice of the licensed rights do not infringe other IP rights.

(2) TIER requires the University to guarantee or warrant that a given IP right is suitable for, or must work for, a particular commercial purpose. This requirement goes beyond what the University can accept or state in an IP license. Instead, the University in all of its licensing transactions states the opposite, that the IP rights are provided without warranty or guarantee or suitability for a particular commercial purpose. That is, put simply, the provided rights are merely IP rights that were invented in the course of performing research, not a product.

(3) TIER's mandatory provision on improvements is similarly unacceptable to the University. The University always reserves the right to practice the licensed invention for its own educational and research purposes. It also extends that right to others in the nonprofit sector. The University needs the freedom to continue to practice the invention and to make improvements for and on its own behalf (and for the global nonprofit research community). If the University were to agree on the future disposition of yet-to-be invented improvements, that agreement could stifle research, academic freedom, and could sweep in the rights of future inventors (or authors of copyrights) without their knowledge or consent. Typical university IP licenses limit the scope to a stated priority patent application and claims in continuing (and/or corresponding foreign patents) that are entitled to the priority filing date of that application. Since the University is unable to accept the TIER terms stated above, in order to mitigate and minimize risks, the University has to identify a licensee that can accept standard terms in these areas – for example, a U.S. affiliate of a Chinese company. The University has been informed that Chinese IP law is in a state of flux and that the former demands may not be required in every license in every situation. The University is submitting the items above, with the hope that changes to Chinese IP law will give Chinese licensees more latitude in obtaining IP rights that arise from academic research.