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**U.S.-CHINA ECONOMIC AND
SECURITY REVIEW COMMISSION**

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The Commission was created on October 30, 2000, by the Floyd D. Spence National Defense Authorization Act for 2001 § 1238, Pub. L. No. 106-398, 114 STAT. 1654A-334 (2000) (codified at 22 U.S.C. § 7002 (2001), as amended by the Treasury and General Government Appropriations Act for 2002 § 645 (regarding employment status of staff) & § 648 (regarding changing annual report due date from March to June), Pub. L. No. 107-67, 115 STAT. 514 (Nov. 12, 2001); as amended by Division P of the "Consolidated Appropriations Resolution, 2003," Pub. L. No. 108-7 (Feb. 20, 2003) (regarding Commission name change, terms of Commissioners, and responsibilities of Commission); as amended by Pub. L. No. 109-108 (H.R. 2862) (Nov. 22, 2005) (regarding responsibilities of Commission and applicability of FACA); as amended by Pub. L. No. 110-161 (Dec. 26, 2007) (regarding changes in annual report due date; submission of financial reports; printing and binding of Congressional reports; employee compensation and performance reviews; and applicability of House rules for travel by members and staff).

The Commission's full charter <http://www.uscc.gov/about/charter.php> and Statutory Mandate <http://www.uscc.gov/about/overview.php> are available via the World Wide Web.

U.S.-CHINA ECONOMIC AND SECURITY REVIEW COMMISSION

OCTOBER 29, 2010

The Honorable Daniel Inouye,
President Pro Tempore of the U.S. Senate, Washington, DC 20510
The Honorable Nancy Pelosi,
Speaker of the U.S. House of Representatives, Washington, DC 20510

DEAR SENATOR INOUE AND SPEAKER PELOSI:

On behalf of the U.S.-China Economic and Security Review Commission, we are pleased to transmit the Commission's 2010 Annual Report to the Congress—the eighth major Report presented to Congress by the Commission—pursuant to Public Law 106–398 (October 30, 2000), as amended by Public Law 109–108 (November 22, 2005). This report responds to the mandate for the Commission “to monitor, investigate, and report to Congress on the national security implications of the bilateral trade and economic relationship between the United States and the People’s Republic of China.” In this Report, the Commission reached a broad and bipartisan consensus; it approved the Report unanimously, with all 12 members voting to approve and submit it.

In accordance with our mandate, this Report, which is current as of October 29, includes detailed treatment of our investigations of the areas identified by Congress for our examination and recommendation. These areas are:

- **PROLIFERATION PRACTICES**—The role of the People’s Republic of China in the proliferation of weapons of mass destruction and other weapons (including dual-use technologies), including actions the United States might take to encourage the People’s Republic of China to cease such practices;
- **ECONOMIC TRANSFERS**—The qualitative and quantitative nature of the transfer of United States production activities to the People’s Republic of China, including the relocation of high technology, manufacturing, and research and development facilities, the impact of such transfers on United States national security, the adequacy of United States export control laws, and the effect of such transfers on United States economic security and employment;
- **ENERGY**—The effect of the large and growing economy of the People’s Republic of China on world energy supplies and the role the United States can play (including joint research and development efforts and technological assistance), in influencing the energy policy of the People’s Republic of China;
- **UNITED STATES CAPITAL MARKETS**—The extent of access to and use of United States capital markets by the People’s Republic of China, including whether or not existing disclosure and transparency rules are adequate to identify People’s Republic of China companies engaged in harmful activities;
- **REGIONAL ECONOMIC AND SECURITY IMPACTS**—The triangular economic and security relationship among the United States, [Taiwan] and the People’s Republic of China (including the military modernization and force deployments of the People’s Republic of China aimed at [Taiwan]), the national budget of the

People's Republic of China, and the fiscal strength of the People's Republic of China in relation to internal instability in the People's Republic of China and the likelihood of the externalization of problems arising from such internal instability;

- **UNITED STATES-CHINA BILATERAL PROGRAMS**—Science and technology programs, the degree of noncompliance by the People's Republic of China with agreements between the United States and the People's Republic of China on prison labor imports and intellectual property rights, and United States enforcement policies with respect to such agreements;
- **WORLD TRADE ORGANIZATION COMPLIANCE**—The compliance of the People's Republic of China with its accession agreement to the World Trade Organization (WTO); and
- **FREEDOM OF EXPRESSION**—The implications of restrictions on speech and access to information in the People's Republic of China for its relations with the United States in the areas of economic and security policy.

The Commission conducted its work through a comprehensive set of eight public hearings, taking testimony from over 90 witnesses from the Congress, the executive branch, industry, academia, policy groups, and other experts. It conducted seven of these hearings in Washington, DC and conducted one field hearing in Toledo, Ohio. For each of its hearings, the Commission produced a transcript (posted on its Web site—www.uscc.gov). The Commission also received a number of briefings by officials of executive branch agencies, intelligence community agencies, and the armed services, including classified briefings on China's cyber operations and military and commercial aerospace modernization. (The Commission is preparing a classified report to Congress on those topics.)

Commissioners also made an official delegation visit to China, Hong Kong, Taiwan and Vietnam to hear and discuss perspectives on China and its global and regional activities. In these visits, the Commission delegations met with U.S. diplomats, host government officials, representatives of the U.S. and foreign business communities, and local experts.

The Commission also relied substantially on the work of its excellent professional staff, and supported outside research in accordance with our mandate.

The Report includes 45 recommendations for Congressional action. Our 10 most important recommendations appear on page 2 at the conclusion of the Executive Summary.

We offer this Report to the Congress in the hope that it will be useful as an updated baseline for assessing progress and challenges in U.S.-China relations.

Thank you for the opportunity to serve. We look forward to continuing to work with you in the upcoming year to address issues of concern in the U.S.-China relationship.

Yours truly,

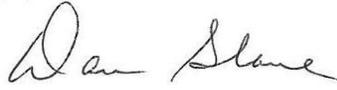


Daniel Slane
Chairman



Carolyn Bartholomew
Vice Chairman

Commissioners Approving the 2010 Report



Daniel M. Slane, Chairman



Carolyn Bartholomew, Vice Chairman



Daniel Blumenthal, Commissioner



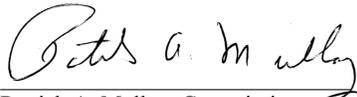
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CONTENTS

	Page
TRANSMITTAL LETTER TO THE CONGRESS	iii
COMMISSIONERS APPROVING THE REPORT	v
EXECUTIVE SUMMARY	1
KEY RECOMMENDATIONS TO CONGRESS	11
INTRODUCTION	13

2010 REPORT TO CONGRESS OF THE U.S.-CHINA ECONOMIC AND SECURITY REVIEW COMMISSION

Chapter 1: The U.S.-China Trade and Economic Relationship	17
Section 1: The U.S.-China Trade and Economic Relationship's Current Status and Significant Changes During 2010	17
Section 2: The Implications and Repercussions of China's Holdings of U.S. Debt	30
Section 3: Evaluating China's Past and Future Role in the World Trade Organization	42
Recommendations	61
Chapter 2: China's Activities Directly Affecting U.S. Security Interests	73
Section 1: China's Growing Air and Conventional Missile Capabilities	73
Section 2: Developments in China's Commercial and Military Aviation Industry	92
Recommendations	106
Chapter 3: China in Asia	119
Section 1: China in Southeast Asia	119
Section 2: Taiwan	143
Section 3: Hong Kong	160
Recommendations	166
Chapter 4: China's Green Energy Policies and Efforts to Promote the Alternative Energy Sector	183
Section 1: China's Environmental and Green Energy Policies	183
Section 2: U.S. and Chinese Efforts to Promote Solar and Wind Energy Manufacturing	199
Recommendations	211
Chapter 5: China and the Internet	221
Section 1: China's Domestic Internet Censorship Activities	221
Section 2: External Implications of China's Internet-Related Activities	236
Recommendations	248
Chapter 6: Information Controls	257
Recommendations	267
Comprehensive List of the Commission's Recommendations	271
Additional Views of Commissioners	277

VIII

	Page
Appendices:	
Appendix I: United States-China Economic and Security Review Commission Charter	281
Appendix II: Background of Commissioners	291
Appendix III: Public Hearings of the Commission	301
Appendix IIIA: List of Witnesses Testifying before the Commission	305
Appendix IV: Interlocutors' Organizations	309
Appendix V: List of Research Material	311
Appendix VI: Abbreviations and Acronyms	313
2010 Commission Staff and Acknowledgements	315

EXECUTIVE SUMMARY

The U.S.-China Economic and Security Review Commission's 2010 Annual Report to Congress sets forth the Commission's analysis of the U.S.-China relationship in the topical areas designated by its Congressional mandate. These areas are China's proliferation practices, the qualitative and quantitative nature of economic transfers of U.S. production activities to China, the effect of China's development on world energy supplies, the access to and use of U.S. capital markets by China, China's regional economic and security impacts, U.S.-China bilateral programs and agreements, China's record of compliance with its World Trade Organization (WTO) commitments, and the implications of China's restrictions on freedom of expression. Our analysis, along with recommendations to Congress for addressing these identified concerns, is chronicled in the Report's six chapters and summarized herein.

OVERALL ASSESSMENT OF U.S.-CHINA ECONOMIC AND SECURITY RELATIONS

Congress gave the Commission the mission of evaluating "the national security implications of the bilateral trade and economic relationship between the United States and the People's Republic of China" and required of the Commission an annual report of its evaluation and findings. The Commission adopts a broad interpretation of "national security" in evaluating how the U.S.-China relationship affects the economic health and industrial base of the United States and the state of U.S. economic and security interests and influence in Asia.

As in its previous Annual Reports, the Commission sees progress on some issues, notably the environment and Taiwan, but the intensification of a number of troubling trends. The Commission also notes that it continues to stand behind both its conclusions as enunciated in the previous Reports to Congress and its recommendations to Congress contained in those Reports, and it does not routinely repeat either its conclusions or recommendations contained in prior Reports.

KEY CONCLUSIONS AND RECOMMENDATIONS

The Report presents its conclusions, analyses, and recommendations to Congress in 13 sections organized into six chapters. The Commission has attempted to take an integrated approach to its assessments, believing that economic, security, and other issues are interrelated. The intersections of U.S. geopolitical, economic, security, diplomatic, and cultural interests form a complex web of concerns that are connected to the overall relationship between the United States and the People's Republic of China.

The Commission's conclusions are incorporated in this Executive Summary. At the end of this summary, the Commission's ten key

recommendations are listed. The Commission makes a total of 45 recommendations to Congress in this Report, with those pertaining to each of the chapters appearing at the conclusion of the chapter. A comprehensive list is provided beginning on page 271.

The U.S.-China Trade and Economic Relationship

Despite the effects of the global financial crisis, China's economy has continued to grow rapidly in 2010, surpassing Japan as the world's second largest economy this year. As a result, China has grown more assertive in pressing its interests in economic fora such as the International Monetary Fund (IMF) and the Group of Twenty nations (G-20). China maintains an export-driven economy through policies such as undervaluation of its currency, the renminbi (RMB), and support for domestic companies to the detriment of foreign competitors. The Chinese government has been reluctant to revalue its currency due to its expressed concerns that it may damage its exporting industries, thus threatening social stability and continued economic growth.

In order to support its export-promoting economic policies and suppress the value of the RMB, the Chinese government has continued channeling its foreign exchange earnings into U.S. government debt, becoming the single largest foreign purchaser of U.S. Treasuries. Although the size of China's holdings has raised concerns about the degree of influence China has on the U.S. economy, the lack of alternatives and the potential detrimental impacts on China's economy make it unlikely that China would stop buying U.S. debt or liquidate its holdings altogether.

Since China joined the WTO in 2001, trade between the United States and China has grown rapidly, but this growth has been very unbalanced, with the United States running record trade deficits. Many American companies have taken advantage of investment incentives, subsidies, and lower labor costs to shift production to China. Within the last year, the Chinese government has initiated new industrial policies, such as "indigenous innovation," which have further slowed the pace of economic reform and affected the ability of American companies to operate and compete in China. Such policies have also harmed U.S. exporters and import-sensitive domestic firms. To resolve these trade imbalances, the United States has sought remedial action through the WTO, but the lengthy process has at times done irreparable harm to U.S. companies before relief has been granted. WTO cases, while important, are frequently inadequate to address the full range of trade-distorting aspects of China's industrial policies.

Conclusions

The U.S.-China Trade and Economic Relationship's Current Status and Significant Changes During 2010

- For the first eight months of 2010, China's goods exports to the United States were \$229.2 billion, while U.S. goods exports to China were \$55.8 billion, with the U.S. trade deficit in goods at \$173.4 billion, an increase of 20.6 percent over the same period in 2009 (\$143.8 billion). This constitutes a four-to-one ratio of Chinese exports to its imports from the United States.

- The U.S. trade deficit with China is a major drag on the U.S. economy. Despite the global financial crisis, China gained an even greater share of the U.S. trade deficit, while the overall U.S. trade deficit declined. The deficit in goods with China is by far the largest among U.S. trading partners: 45 percent of the total in 2009 and 41.5 percent of the total for the first eight months of 2010.
- China's government policies limit the ability of foreign companies to obtain Chinese government procurement contracts and to make sales to China's state-owned enterprises, most recently through China's new "indigenous innovation" policy. Companies in the United States and Europe have protested this discriminatory treatment.
- Since June 19, 2010, the RMB appreciated by just 2.3 percent against the dollar (as of October 2010). The RMB remains substantially undervalued against the dollar, which subsidizes Chinese exporters to the detriment of U.S. domestic producers. China's undervalued currency also helps attract foreign companies to locate production in China.
- China continues to pursue a long-term goal of making the RMB a more international currency, starting with the introduction of several policies designed to make trade and bond issuance in the RMB easier, particularly among China's Asian neighbors. China's reforms thus far have had little effect on the RMB's use in international trade.
- As in previous years, the United States engaged China at several bilateral and multilateral negotiations, including the Strategic and Economic Dialogue and meetings of the Group of 20, to address China's discriminatory trade policies, but again failed in 2010 to secure any significant agreements or Chinese policy changes.

The Implications and Repercussions of China's Holdings of U.S. Debt

- The United States need not fear a large sale of U.S. bonds by China nor a wholesale switch by China to investing in the bonds of another country. Because China holds such a large amount of dollar-denominated investments, including the bonds of U.S.-government owned Fannie Mae and Freddie Mac, and because the alternative investments in the euro and the yen are so limited, China has few alternatives to the dollar for its foreign reserves.
- Over the past decade, the government of the People's Republic of China has become the largest purchaser of U.S. debt. China implements a deliberate economic policy that relies on exports and foreign investment capital to amass a large current account surplus with the United States. That trade surplus is loaned back to the United States as part of China's deliberate policy.
- China manipulates the value of its currency, the RMB, by requiring its citizens, businesses, and exporters to trade their dollars for RMB. By limiting the dollars in circulation within China, the

government can then set a daily exchange rate between the RMB and the dollar. China maintains an artificially low value for the RMB that is estimated to be between 20 percent and 40 percent lower than it would otherwise be, if it were allowed to respond to market forces.

- China's export-led growth strategy requires China to continue to run large trade surpluses with the United States and to recycle its accumulated dollars through the purchase of U.S. dollar-denominated securities. Recycling dollars back into the U.S. economy helps China to maintain the artificially low value of the RMB. China's currency policy harms U.S. exporters and import-sensitive manufacturers in the United States, though the policy aids consumers in the United States by keeping interest rates and prices low.
- A relaxation of China's currency policy would require China to end its capital controls. Easing China's capital controls would help to rebalance the economic relationship between the two countries.

Evaluating China's Past and Future Role in the World Trade Organization

- Since China's accession to the WTO in 2001, the annual U.S. current account deficit with China has grown from \$89 billion in 2001 to \$264 billion in 2009. Predictions of a more balanced trade relationship between the two countries as a result of China's membership in the WTO have proven false. Since China's entry into the WTO in 2001, the United States has run a cumulative deficit in goods with China of over \$1.76 trillion.
- Predictions that China's WTO accession would lead to the transformation of China's authoritarian government and enhance U.S. national security have not been borne out.
- Though China's implementation of its WTO commitments has led to a reduction in tariffs, the elimination of some nontariff barriers, and improved market access for some U.S. companies, in other areas significant problems persist. These can be traced to China's pursuit of policies that rely on trade-distorting government intervention intended to promote China's domestic industries and protect them from international competition.
- China, the biggest producer of rare earth elements in the world, has introduced measures aimed at restricting exports to foreign markets, to the detriment of foreign producers of a variety of cutting-edge technologies, including green and clean technologies and weapons systems. Such export restrictions provide an unfair advantage to Chinese technology producers.
- China's progress toward market liberalization has slowed in some sectors and has been reversed in others, such as government procurement and financial services.
- The U.S. government has filed a variety of WTO cases against China's barriers to trade. These WTO cases, while important, frequently fail to deal with the underlying causes of the U.S.-China

trade deficit. WTO dispute resolution may be a poor tool for addressing such issues as China's currency manipulation and the trade-distorting aspects of China's industrial policy.

China's Activities Directly Affecting U.S. Security Interests

As a component of its overall desire to field a modern military, China is modernizing its air and missile forces and improving its capabilities to conduct offensive air and missile operations. Recent modernization efforts have centered on developing modern combat and combat support aircraft, expanding its conventional ballistic and cruise missile arsenal, and improving the professionalism and training of its personnel. These improvements have expanded China's ability to operate outside its borders and reach U.S. regional allies, such as Japan, as well as U.S. forces in the region.

In order to improve its military aircraft as well as develop a globally competitive aviation manufacturing industry, China is providing strong fiscal and political support and guaranteed market access to domestic aviation manufacturing firms. Foreign aviation manufacturing firms, such as Boeing and Airbus, are compelled to provide technology and know-how offsets in return for market access. In addition, advances in China's commercial aviation sector bolster progress in China's military aviation manufacturing industry.

Conclusions

China's Growing Air and Conventional Missile Capabilities

- Over the past decade, as part of its overall military modernization, China has significantly modernized its air and missile capabilities. This modernization process is across the board, to include foreign purchases and indigenous production of aircraft, weapons, and equipment. In addition, institutional changes such as organizational, personnel, and training reforms continue to improve the People's Liberation Army (PLA) Air Force's capacity to conduct operations.
- Augmenting its modernization efforts, Beijing has expanded the PLA Air Force's focus in recent years from solely concentrating on territorial defense operations to now include extraterritorial offensive operations.
- Simultaneous with the modernization of China's Air Force, Beijing has also strengthened the PLA's ability to conduct conventional missile strikes. Improvements include fielding increased numbers and types of more accurate conventional ballistic and land-attack cruise missiles.
- As China's air and missile modernization efforts progress, Beijing's ability to threaten U.S. forward deployed forces and bases in the region is improving. Any PLA missile strikes and air raids against U.S. bases, if successful, could force the temporary closure of regional U.S. bases and inhibit the U.S. military's ability to operate effectively in East Asia. In addition, the future deployment of an antiship ballistic missile could seriously interfere with the U.S. military's freedom of access to the region.

Developments in China's Commercial and Military Aviation Industry

- Given the close integration of China's commercial and military aviation sectors, advances in China's commercial aviation industry gained through interactions with western aviation manufacturers directly benefit China's defense aviation industry. As China's commercial aircraft manufacturing capabilities improve, newly acquired technology and know-how, such as composite materials production, are directly transferred to the defense aviation sector.
- Over the past decade, China's aviation industrial base, with the strong support of the Chinese government, has improved substantially. China currently is capable of developing and producing both advanced commercial and military aircraft and seeks to compete with foreign aviation manufacturing companies in the near future. Despite these advances, however, the industry continues to experience some problems, most notably in producing advanced engines.
- China's aviation industrial base benefits from several practices that bear watching. In particular, the industry enjoys strong government support that favors domestic firms over foreign firms and also benefits from technology and know-how offsets from western aviation firms in exchange for market access.
- Developments in China's aviation industry pose both benefits and challenges to the United States. In the near term, U.S. aviation manufacturing firms stand to benefit from increased aviation exports to China. However, as China's aviation manufacturing firms improve, U.S. aircraft and aviation component manufacturing companies will likely face increased competition from these aviation firms in China's domestic, third country, and U.S. markets.

China in Asia

In recent years, China's rise is increasingly evident in Asia. In Southeast Asia, Beijing has combined economic, diplomatic, and security engagement to increase its influence in the region. However, China's recent assertiveness in the region, including its maritime claims in the South China Sea and its construction of controversial dams along the Mekong River, have led many Southeast Asian nations to engage more actively with the United States.

China has also increased its economic and diplomatic interactions with Taiwan, through more numerous official visits and the June 2010 signing of a historic trade liberalization pact, the Economic Cooperation Framework Agreement. Nevertheless, China's continued military buildup against Taiwan has resulted in a balance that increasingly favors the mainland, especially in regard to Taiwan's air defense capabilities.

During the Commission's July 2010 fact-finding trip to Hong Kong, meetings with Hong Kong and U.S. government officials and private sector representatives highlighted the rising economic and political influence of China within Hong Kong. Hong Kong has benefited economically from its integration with mainland China, but

concerns over political freedoms, rule of law, and pollution from the mainland continue to be of growing concern in the relationship.

Conclusions

China in Southeast Asia

- China's political, economic, energy, and security interactions with Southeast Asia have increased significantly in recent years and are expected to increase in the future.
- Tensions in the South China Sea and East China Sea, dam construction along the Mekong River, and Southeast Asian historical mistrust may limit China's influence in the region.
- Many Southeast Asian nations are looking to increase their relationships with the United States in order to hedge against China's growing presence in the region.
- China's assertiveness in the South China Sea constitutes a potential threat to U.S. interests, including the freedom of navigation.

Taiwan

- Over the past year, China and Taiwan have continued to improve their overall bilateral relationship. This improvement builds upon a trend begun at least in May 2008, with the inauguration of Taiwan President Ma Ying-jeou.
- The improvements in the cross-Strait relationship are not even across the board. Most improved are the bilateral economic ties, as demonstrated by the recent signing of a cross-Strait free trade agreement between China and Taiwan. Diplomatic relations, while less improved than the economic relationship, have also seen progress over the past year. Periodic meetings and negotiations between Taipei and Beijing have become the norm.
- The cross-Strait security situation is still of serious concern. China's continued military buildup across from Taiwan is increasing the gap in military capabilities between the two sides. In particular, Taiwan's air defense capabilities are degrading as its air force ages and the PLA's air and missile capabilities improve.

Hong Kong

- In 2010, efforts to transition elections for Hong Kong's Legislative Council to universal suffrage, agreed to in the Joint Declaration, were once again delayed, which was met with controversy among Hong Kong's democracy supporters. Also in 2010, the freedom of the press in Hong Kong remains an ongoing struggle.
- Hong Kong is facing a number of environmental problems due to its proximity to the manufacturing hub of the Pearl River Delta.
- Hong Kong's economy has noticeably recovered from the 2009 downturn due to a targeted economic stimulus that focused on small- and medium-sized enterprises.

China's Green Energy Policies and Efforts to Promote Alternative Energy Sectors

China has taken significant steps to increase the use of cleaner forms of energy as its leaders have realized that the country's current energy structure is directly affecting its economy and security. Chinese leaders view the promotion of green energy and environmental policies as a means to curb demand and increase energy security. In addition, Beijing hopes that promoting green technology can help to mitigate the polluting effects of China's increasing energy use and help to establish a new, internationally competitive, green energy industry. Despite noteworthy accomplishments, China's green energy efforts are and have been hampered by problems with enforcement as well as by increases in China's incessant energy demands.

In order to promote green energy and increase China's global market share, China has added alternative and renewable technologies to its growing list of favored and subsidized industries. China also intends to establish certain alternative energy industries as "national champions," able to dominate domestic and export markets. To that end, China has made its own renewable energy market increasingly difficult for foreign companies to enter and to compete against Chinese firms. As a result of China's comprehensive programs of subsidies and domestic market protections, many U.S. companies are at a strategic disadvantage in the global alternative and renewable energy markets.

Conclusions

China's Environmental and Green Energy Policies

- China has devoted a significant amount of money and has developed legislation in an effort to find alternative sources for energy, improve energy efficiency, protect the environment in the country, and build sectors of its economy.
- Despite progress in reducing pollutants and increasing green energy over the short term, significant problems such as lack of compliance at the local level and China's economic development plans may make it harder to sustain this progress over the long term.
- China's domestic legislation on green energy has been more substantive than its commitments in international climate change negotiations. Despite the fact that China believes it is in its domestic interest to curb energy inefficiency and carbon emissions, Beijing is reluctant to be held accountable for reductions on the international stage.
- The United States and China share many similar challenges in their quest for green energy and could have much to gain from cooperation on these issues.

U.S. and Chinese Efforts to Promote Alternative Energy Manufacturing

- China is developing a leading wind turbine and solar panel manufacturing sector. These sectors are intended to become the dominant world suppliers while serving China's growing domestic market.
- China has set ambitious goals for the level of solar, wind, and nuclear power generation through its Renewable Energy Law and 11th Five Year Plan. This effort includes a substantial renewable portfolio standard, requiring that China's power supply further diversify by 2020 to emphasize noncoal and nonnuclear power sources.
- China has a well-developed, long-term strategy for investment in the green technology manufacturing sector, which gives it a competitive advantage.
- Ohio is one of 30 states that have adopted renewable portfolio standards designed to spur the deployment of renewable energy projects.

China and the Internet

The Chinese government continues to maintain a sophisticated Internet filtering system to restrict freedom of speech. Beyond filtering, the Chinese government has increasingly sought to direct public discussion over the Internet. Beijing outsources much of its censorship activities to the private sector. Moreover, the penetration of Google's computer network this year has renewed concerns about the Chinese government's tolerance or possible sponsorship of malicious computer activity.

Conclusions

China's Domestic Internet Censorship Practices

- Chinese authorities have managed skillfully to balance their perceived need to limit speech on the Internet with the Chinese public's need to feel a part of an ongoing and participatory discourse about the country's social conditions. The Chinese government has used all available means to bind the content and scope of this conversation. At the same time, the government has been selectively responsive and has attempted to remediate some of the nation's most serious irritants in order for the Chinese Communist Party to maintain power. This confluence of conditions might be termed "network authoritarianism."
- China's leadership views information and communications technologies as presenting opportunities for economic development and enabling the distribution of propaganda at home and abroad in support of Chinese Communist Party interests. Conversely, the Chinese government views these technologies as a threat to regime stability and the Party's ability to control the flow of information and freedom of expression.

- Beijing continues to institutionalize and promote strict Internet governance through numerous laws and regulations as well as rigorous oversight and enforcement from government organizations. Chinese authorities also influence and guide the nature and tone of discussions online.
- The Chinese government outsources much of its censorship activities to the private sector. The popular search engine Baidu serves as a useful case study of this dynamic. The firm, established in part with the help of U.S. capital, plays a key role in China's censorship regime. With Google's smaller presence in China, Baidu and its American investors stand to reap greater profits.
- China's Internet censorship activities have broad implications for the United States. Impeded information flows are destabilizing, particularly in the context of a crisis. Moreover, censorship in some respects is actually a barrier to trade, thereby undermining U.S. businesses' ability to operate in China.

External Implications of China's Internet-related Activities

- China's government, the Chinese Communist Party, and Chinese individuals and organizations continue to hack into American computer systems and networks as well as those of foreign entities and governments. The methods used during these activities are generally more sophisticated than techniques used in previous exploitations. Those responsible for these acts increasingly leverage social networking tools as well as malicious software tied to the criminal underground.
- Recent high-profile, China-based computer exploitations continue to suggest some level of state support. Indicators include the massive scale of these exploitations and the extensive intelligence and reconnaissance components.
- In 2010, China's "Great Firewall" affected select U.S. Internet users, and a state-owned Chinese Internet Service Provider "hijacked," or inappropriately gained access to, select U.S. Internet traffic. Other nations were also affected in these incidents.
- Chinese authorities are tightening restrictions on foreign high-technology firms' ability to operate in China. Firms that fail to comply with the new regulations may be prohibited from doing business in Chinese markets. Firms that choose to comply may risk exposing their security measures or even their intellectual property to Chinese competitors.

Information Control

The Chinese government uses various tools to control access to information beyond Internet censorship. China's state and trade secrets legal and regulatory framework raises questions about foreign firms' ability to operate safely in China, specifically the potential for flexible and arbitrary enforcement of state secrets-related laws. Another major concern is the lack of information about China disclosed by Chinese companies that seek to raise capital in U.S. markets.

Conclusions

- The Chinese government refined its state and trade secrets regime in 2010. This effort yielded some clarifications, but several laws and regulations still contain broad language that allows for ambiguous interpretation and arbitrary enforcement. In recent years, Chinese authorities have enforced these provisions on U.S. citizens doing business in China.
- For U.S.-listed Chinese firms, China's state secrets laws could conceivably conflict with U.S. disclosure requirements. If the firms defer to the Chinese laws, U.S. investments could be at increased risk.
- Official filings from U.S.-listed Chinese companies may not adequately disclose material information that relates specifically to China, such as the pervasiveness of Chinese Communist Party influence in the day-to-day operations of state-owned enterprises and their subsidiaries.

THE COMMISSION'S KEY RECOMMENDATIONS

The Commission believes that ten of its 45 recommendations to Congress are of particular significance. These are presented below in the order in which they appear in the Report. The complete list of 45 recommendations appears at the Report's conclusion on page 271.

- The Commission recommends that Congress urge the administration to respond to China's currency undervaluation by
 - a. Working with U.S. trading partners to bring to bear on China the enforcement provisions of all relevant international institutions; and
 - b. Using the unilateral tools available to the U.S. government to encourage China to help correct global imbalances and to shift its economy to more consumption-driven growth.
- The Commission recommends that Congress examine the efficacy of the tools available to the U.S. government to address market access-limiting practices by China not covered by its WTO obligations, and, as necessary, develop new tools.
- The Commission recommends that Congress direct the Department of the Treasury to fully account for all sales of U.S. government debt to foreign governments and holdings of U.S. government debt by foreign governments.
- The Commission recommends that Congress require the Department of Defense, as part of the appropriate Combatant Commander's annual posture statement to Congress, to report on the adequacy of the U.S. military's capacity to withstand a Chinese air and missile assault on regional bases, as well as a list of concrete steps required to further strengthen their bases' capacity to survive such an assault and continue or resume operation.

- The Commission recommends that Congress assess the adequacy of resources available to Department of Defense programs that seek to counter China's antiaccess capabilities. Key programs include long-range strike platforms, electronic warfare systems, and advanced air-to-air platforms and weapons, such as fifth generation fighters and air-to-air missiles.
- The Commission recommends that Congress direct the Department of Defense to address the issue of Taiwan's air defense capabilities, to include a more detailed net assessment of Taiwan's needs vis-à-vis China's growing military air and missile capabilities and an assessment of the impact that further deterioration in Taiwan's air defense capabilities could have on U.S. forces in the event of U.S. involvement in a cross-Strait scenario.
- The Commission recommends that Congress reauthorize the U.S.-Hong Kong Policy Act of 1992, which expired in 2007.
- The Commission recommends that if the United States is to compete successfully in green technology manufacturing, Congress should examine domestic programs available to U.S. producers to ensure that these policies are an adequate response to China's strategic promotion of the green technology sector.
- The Commission recommends that Congress request that the administration periodically issue a single report about the volume and seriousness of exploitations and attacks targeting the information systems of all federal agencies that handle sensitive information related to diplomatic, intelligence, military, and economic issues. To the extent feasible, these reports should indicate points of origin for this malicious activity and planned measures to mitigate and prevent future exploitations and attacks.
- The Commission recommends that Congress direct the Securities and Exchange Commission to require that disclosure documents filed by companies seeking to list on the U.S. exchanges identify the Chinese Communist Party affiliation of board members and senior corporate officials.

INTRODUCTION

In 2010, the Government of the People's Republic of China appeared to be returning to a previous era, abandoning a path that once seemed intended to lead China to a more open economy, a better relationship with its neighbors, and a cautious but positive leadership role in world affairs. Following the 2007–2009 global financial crisis, while much of the world continued to struggle, China's economy quickly returned to its previous trajectory of double-digit growth fueled by an export-led strategy. With this strategy, China's leadership seemed determined to capitalize on its advantages, even at the expense of its neighbors and major trading partners. Furthermore, over the past year, China has increased its assertiveness when interacting with its neighbors, especially in regard to its maritime territorial disputes in the East and South China Seas. Finally, China continues to develop its military capabilities, some of which appear directly targeted at the U.S. military.

To China's leaders, the global economic crisis justified stronger government controls over the economy, slowing privatization and supporting the creation of state-owned and state-controlled "national champions." This is particularly evident in the emerging alternative energy sectors. China has provided its solar and wind industries with government subsidies while erecting protectionist trade barriers to keep out American and European suppliers. Of greater concern are restrictions China recently announced on the export of rare earth minerals. These restrictions will likely impact U.S. and European manufacturers of advanced electronics, powerful batteries used for low-emission cars, and precision-guided weapons. Beijing's move is certain to put foreign competitors in advanced technology products at a disadvantage, requiring them to either produce in China or pay more for a dwindling global supply of the scarce electronics components.

Rather than opening government procurement contracts to imported goods, as Chinese officials said they would "as soon as possible" when China joined the World Trade Organization (WTO) in 2001, China in 2010 prepared to implement a policy favoring "indigenous innovation" over imported goods. This exclusionary policy would continue to give Chinese manufacturers a preference in government contracting unless foreign companies were willing to register and disclose sensitive technological information. This requirement has alarmed U.S. manufacturers, who view China's intellectual property controls as weak. Meanwhile, China continues to exclude the state-owned commercial sector from coverage by the World Trade Organization's Government Procurement Agreement, which it has thus far not signed.

Since China joined the WTO, the United States has experienced massive annual trade deficits with China that cumulatively amount to \$1.76 trillion. China has adopted policies to encourage

foreign companies to transfer production, technology, and research and development to China in return for access to its market. Many have done so. The resultant unbalanced nature of the trade and economic relationship between the United States and China has helped give China the financial resources and new technological capabilities that have enabled it to strengthen and grow its economic, military, and political power.

A key example of this trend is China's aviation manufacturing industry. China is developing two types of commercial aircraft intended to compete with foreign aviation manufacturers. Although these projects could benefit the U.S. aviation manufacturing industry by increasing aviation-related exports to China in the near term, over time policies implemented by Beijing could undermine U.S. competitiveness. In return for current market access, foreign aviation manufacturers are providing China with technology offsets, important to its domestic industry's growth. The government is also providing Chinese state-owned aviation manufacturing firms with financial support, and ensuring dedicated markets by creating state-owned airline companies that are required to purchase only domestically produced aircraft. Moreover, Beijing is exploiting advances derived from cooperation between Chinese and foreign aviation manufacturing firms to promote the development of China's military aviation sector.

An additional economic issue of serious concern is China's management of its currency. In July 2008 in response to the global financial crisis, China halted the appreciation of its currency, the renminbi (RMB). Under considerable pressure from its trading partners, on June 19, 2010, China announced that the RMB would be allowed to fluctuate on intraday trades. But the supposed reform failed to meet global expectations. China still dictates the value of the RMB relative to the dollar on each trading day, and, according to the International Monetary Fund, the RMB remains "substantially undervalued." As of October 13, the RMB had only appreciated by 2.3 percent, far below the estimated undervaluation of 20 to 40 percent. The International Monetary Fund and the Group of Twenty nations (G-20) members have attempted to persuade China to allow its currency to reflect a market price but elicited only refusals from China's top leaders. Chinese Premier Wen Jiabao turned aside appeals, warning in October that "if the [RMB] is not stable, it will bring disaster to China and the world." In addition, there is little evidence that consumption is constituting a greater share of the Chinese economy.

While regressing on its economic reforms, the Chinese government has sought to tighten its control over its economy by extending laws protecting "state secrets." Under the new rules, foreign companies may be prosecuted for obtaining financial, investment, managerial, and organizational information about state-owned competitors. For example, an American geologist was sentenced in July to eight years in prison for purchasing publicly available geologic reports that Chinese authorities retroactively deemed to be state secrets. The Chinese government also introduced other state secrets legislation that ratcheted up restrictions, and imposed obligations, on Internet service providers.

Over the past year, China has also used other means to tighten controls on the use of the Internet, restricting the access of its citizens to the outside world in order to censor or influence news about such sensitive issues as Tibet and the Dalai Lama; ethnic unrest in Xinjiang Province; the Sichuan earthquake; and human rights protests within China. China's media almost entirely blocked news and thoroughly censored Internet discussions about the 2010 Nobel Peace Prize awarded to Liu Xiaobo, a prominent dissident active in promoting political reform in China.

Cyber attacks emanating from China also continued over the past year. In January, Google, Inc., reported that its servers had been breached and a large amount of proprietary information stolen in an attack that appeared to originate within China. The same operation targeted other U.S. companies in an effort to obtain intellectual property through computer intrusions. Such efforts likely operate with the tacit knowledge of the Chinese government and may even involve full government support. Other developments in 2010 suggest increased opposition to foreign technology firms. For example, Chinese authorities issued a series of new regulations designed to promote domestic information technology suppliers while undermining foreign competitors.

On the international stage, China has undermined the progress it had made over the past decade in promoting its peaceful rise with a renewed assertiveness in advancing its sovereignty claims to large areas in the East and South China Seas. China's claims are disputed by Brunei, Japan, Malaysia, the Philippines, Taiwan, and Vietnam. Early this summer, China labeled the South China Sea a "core interest," on par with its claims to Tibet and Taiwan. Following the U.S.-South Korean announcement of joint naval exercises in the Yellow Sea and the Sea of Japan, held in response to North Korea's sinking of a South Korean naval vessel, Beijing held military exercises in the Yellow and South China Seas. In September, China retaliated against the Japanese detention of a Chinese fishing boat captain by imposing an unofficial ban on rare earth metal exports to Japan.

Beijing continues to modernize its military and develop an anti-access strategy intended to deny the U.S. military the ability to operate freely in the region in the event of a crisis with China. Key components of China's military modernization efforts include the development of a modern offensive air force and the qualitative and quantitative improvement of its conventional missile forces. In further support of its anti-access strategy, China is in the final stages of developing a ballistic missile capable of targeting U.S. aircraft carriers up to 1,000 miles from China's coast. Taken together, these advances provide China with the ability to strike every U.S. base in the region.

One area where China has shown clear progress is in its relations with Taiwan. Over the past year, political, diplomatic, and economic ties between China and Taiwan continued to improve, culminating in a major cross-Strait trade liberalization agreement. These improvements have enhanced peace and stability in the region. Nevertheless, China still refuses to renounce the use of force in the event of a crisis with Taiwan, and continues to bolster its military forces opposite the island. In particular, China continues

to increase the number of short-range ballistic missiles targeting Taiwan in an attempt to deter the island from seeking de jure independence.

These and other issues are discussed in this, the Commission's eighth Report to Congress. Congress gave the Commission the responsibility to advise it on economic and security policy toward China. To complete its work in the past year, the Commission held seven hearings in Washington, DC, and one field hearing in Toledo, Ohio. In support of its research, Commissioners visited Vietnam and Taiwan and the Chinese cities of Beijing, Baoding, Tianjin, and Hong Kong. The Commission also contracted independent research on topics the Commissioners viewed as important to U.S. policy toward China, which can be found in Appendix IV. This year, Commissioners attended a series of classified briefings at the U.S. Air Force's National Air and Space Intelligence Center and will submit a separate classified Report to Congress.

CHAPTER 1
THE U.S.–CHINA TRADE
AND ECONOMIC RELATIONSHIP
SECTION 1: THE U.S.–CHINA TRADE AND
ECONOMIC RELATIONSHIP’S CURRENT STATUS
AND SIGNIFICANT CHANGES DURING 2010

Introduction

After three decades of growth averaging nearly 10 percent a year, China passed Japan in the first half of 2010 to become the world’s second-largest economy, after the United States.¹ Although the gap between China’s \$5 trillion economy and the nearly \$15 trillion economy of the United States remains very large, China’s advancement is remarkable for a country whose gross domestic product (GDP) was just half as much five years ago. China’s per capita income has increased from \$930 in 2000 to \$3,600 in 2009.² China is America’s biggest trading partner in the Asia-Pacific region and its second-largest trading partner overall, after Canada.³

While the United States and the European Union (EU) are struggling in the wake of the global financial crisis, China has continued to grow: In the first quarter of 2010, China posted growth of 11.9 percent at an annualized rate.⁴ Although growth has been moderating since (10.3 percent in the second quarter at an annualized rate), China’s economy is forecast to expand about 10 percent in 2010—continuing a remarkable, three-decade streak of double-digit growth on average. As the holder of the world’s largest stock of foreign exchange reserves (\$2.65 trillion as of October 2010),⁵ Beijing also questioned the role of the U.S. dollar as the global reserve currency and has led the drive for greater representation on global bodies, such as the International Monetary Fund (IMF) and the World Bank.⁶ China’s leaders have grown more confident on the international stage and have begun to assert greater influence in Asia, Africa, and Latin America with special trade agreements and multibillion dollar resource deals.⁷

Earlier this year, Beijing pointed to a series of smaller monthly trade surpluses, and even a highly unusual global trade deficit in March, as evidence that the Chinese economy was already rebalancing and was much less dependent on exports. However, more recent figures suggest that the global trade surplus in the second half of 2010 is likely to be much larger than in 2009. In July 2010, for example, China’s overall trade surplus jumped to its highest level since January 2009 (\$28.7 billion, a 170 percent increase year-on-year), reinforcing criticism that the country’s currency re-

mains substantially undervalued. China's economic growth remains reliant on expanding exports and investment.

In order to achieve a more balanced economy, China would need to shift its policies to encourage greater domestic consumption. But there is little evidence that such a shift is taking place; in fact, China's consumption as a share of GDP has fallen from 46 percent in 2000 to below 36 percent in 2009.⁸ In contrast, personal consumption in the United States has hovered around 70 percent of GDP for the last decade.⁹ China's government consistently favors policies, such as currency undervaluation and favoritism toward indigenous innovation and production, that promote its exporting industries to the detriment of its trading partners. China's Communist Party leadership sees its legitimacy and political monopoly as inextricably linked with the economy's good performance and full employment.¹⁰ The party and the government are therefore reluctant to risk China's historically high growth rate with policies meant to encourage consumption instead of the export and investment growth model that has proven so successful over time.¹¹

Chinese policymakers also continue to worry about the impact any policy change may have on "social stability." In a speech to top EU officials in Brussels, Chinese Premier Wen Jiabao said that if the renminbi (RMB) "is not stable, it will bring disaster to China and the world. If we increase the [RMB] by 20% or 40% ... many of our factories will shut down and society will be in turmoil."¹² Communist Party leaders are particularly concerned about the 100 million to 200 million migrant workers from rural areas who depend upon the entry-level manufacturing jobs in China's factories, many of which produce goods for export. For example, in an earlier speech, Premier Wen warned that "[w]e cannot imagine how many Chinese factories will go bankrupt, how many Chinese workers will lose their jobs, and how many migrant workers will return to the countryside" should China acquiesce to demands for an RMB gain. "China would suffer major social upheaval," he said.¹³

The U.S.-China Trade Relationship

For the first eight months of 2010, China's goods exports to the United States were \$229.2 billion, while U.S. goods exports to China were \$55.8 billion, with the U.S. trade deficit in goods at \$173.4 billion, an increase of 20.6 percent over the same period in 2009 (\$143.8 billion).

Table 1: U.S.-China Trade in Goods (\$ billion), 2000–2009

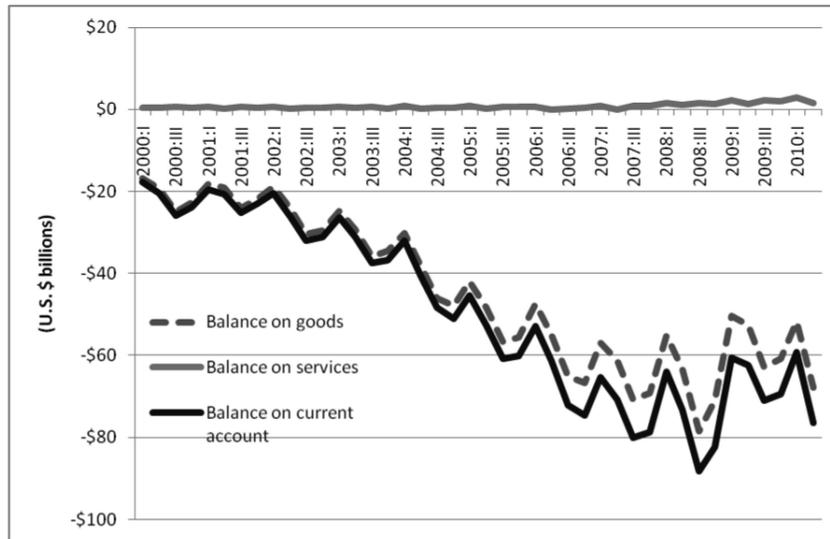
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
U.S. Exports	\$16.3	\$19.2	\$22.1	\$28.4	\$34.7	\$41.8	\$55.2	\$65.2	\$69.7	\$69.5
U.S. Imports	100.0	102.3	125.2	152.4	196.7	243.5	287.8	321.5	337.8	296.4
Balance	-83.7	-83.1	-103.1	-124.1	-162.1	-201.6	-232.5	-256.3	-268.04	-226.9

Source: Bureau of Economic Analysis, *U.S. International Transactions Accounts Data: China* (Washington, DC: U.S. Department of Commerce, June 17, 2010).

As the global recession reduced U.S. demand for imports, the U.S. trade deficit with the world and with China declined in 2009.

However, the relative portion of China's share of the U.S. global trade deficit actually grew. In August 2010, the U.S. trade deficit with China (\$28 billion) hit its highest level on record.¹⁴ The deficit in goods with China is by far the largest among U.S. trading partners, 45 percent of the total in 2009 and 41.5 percent of the total for the first eight months of 2010.¹⁵

Figure 1: U.S.-China Trade Balance (Quarterly), 2000-2010 (through 2010 QII)



Source: Bureau of Economic Analysis, *U.S. International Transactions Accounts Data: China* (Washington, DC: U.S. Department of Commerce, September 16, 2010).

The U.S. global manufactured goods deficit fell from \$466 billion in 2008 to \$319 billion in 2009, a decline of 45.9 percent.¹⁶ However, China's share of the U.S. manufactured goods trade deficit jumped from 59.8 percent (\$278.9 billion) in 2008 to 75.2 percent (\$240.2 billion) in 2009. According to Chinese statistics, in 2009, foreign-invested companies in China accounted for 56 percent (\$672 billion) of Chinese global exports (\$1.2 trillion).¹⁷ The U.S. trade balance with China in advanced technology products (ATP)¹⁸ has also deteriorated: the bilateral U.S. trade deficit in advanced technology products has soared from \$6.1 billion in 2001 to \$72.5 billion in 2009.¹⁹ In the first half of 2010, the United States exported \$10 billion in ATP to China and imported \$51.9 billion, for a six-month deficit of \$41.6 billion.²⁰ The United States has an overall global trade deficit in ATP: \$56.2 billion in 2009, and \$38.9 billion for the first seven months of 2010.²¹

Frustration with Chinese Policies Increases

The Chinese government's relations with foreign investors in China appear to be going through a profound change since Beijing announced its indigenous innovation policy, which explicitly favors

domestic companies over foreign firms, particularly in government procurement. The American Chamber of Commerce in China reported in its 2010 annual survey that 31 percent of over 300 member companies polled (up from 28 percent in the 2009 annual survey) said their ability to participate and compete in China's market was impeded by discriminatory government policies and inconsistent legal treatment.²² This issue has emerged as the top challenge to Chamber members in 2010. Furthermore, even before the full implementation of China's indigenous innovation policy, 37 percent of high-tech and information technology companies reported that they were losing sales as a result of policies already in effect, while 57 percent reported that they expected to lose business.²³ The Chamber said Beijing was attempting to squeeze foreign technology companies out of the lucrative government procurement market. "The AmCham-China survey shows that U.S. companies believe they face product discrimination in state-owned enterprise purchases, as well as in government procurement," a statement accompanying the survey results said.²⁴

The European Chamber of Commerce in China reported similar complaints. An annual survey of 500 European businesses invested in China found that 36 percent believe Chinese government policies have become less fair in the past two years, pointing to selective enforcement of laws and regulations, poor protection of intellectual property, and the lack of market access for foreign companies.²⁵ In a strongly worded position paper for 2010–2011, the European Chamber of Commerce said foreign companies are losing market share in China across a broad range of industries because of discriminatory treatment by the government and regulators.²⁶ The Chamber president accused China of a "growing willingness and tendency to exclude foreign businesses from the Chinese market."²⁷

In fact, some businesses have publicly declared that they gradually are being squeezed out of the Chinese market by government policies that first demand technology transfer in exchange for market access and then favor domestic companies.²⁸ In previous years, representatives of U.S. business made similar complaints to the members of the U.S.-China Commission only in private. In a January 2010 letter to senior Obama Administration officials, the heads of 19 U.S. business and industry associations cautioned against "[s]ystematic efforts by China to develop policies that build their domestic enterprises at the expense of U.S. firms and U.S. intellectual property."²⁹ In July 2010, two of Germany's most prominent industrialists attacked the business and investment climate in China during a meeting with Chinese Premier Wen Jiabao. Jürgen Hambrecht, chairman of BASF, complained of foreign companies facing the "forced disclosure of know-how" in order to do business in China. "That does not exactly correspond to our views of a partnership," he said.³⁰ In addition, Peter Löscher, chief executive officer of Siemens, said foreign companies operating in China "expect to find equal conditions in the fields of public tenders," referring to China's controversial procurement practices, and called on Beijing rapidly to remove trade and investment restrictions in sectors such as automobiles and financial services.³¹

Although Premier Wen insisted that China remains open to foreign investment and does not discriminate against foreign companies, the perception is growing among foreign businesses that after 30 years of market reforms, they are no longer welcome in China once their technology has been siphoned off.³²

Changes in China's Exchange Rate Regime

China's manipulation of its currency remains one of the most intransigent issues in the U.S.-China trade relationship. China's deliberately undervalued RMB has unfairly conferred substantial economic advantages on China to the detriment of major trading partners, principally the United States and Europe. China's undervalued RMB makes China's exports cheaper and imports more expensive, and it encourages foreign direct investment into China, resulting in the loss of investment and jobs in Europe and the United States.

China's Foreign Exchange Controls

The People's Bank of China has maintained its strict control of the value of the RMB through several means. The government requires Chinese exporters and ordinary citizens to trade their dollar and other foreign exchange earnings for RMB through the system of state-owned banks. This keeps dollars in the hands of the government and prevents dollars from being used by the people for purchases of imported goods or services or for investments in the United States. It also makes it easier for the government to set a specific RMB-dollar exchange rate each day without having to worry about a secondary, grey market for dollars. Consequently, the exchange rate between the RMB and the dollar has stayed within a narrow trading band determined by Beijing, despite an announcement in July 2005 that the RMB's value would become "adjustable, based on market supply and demand with reference to exchange rate movements of currencies in a basket" of currencies.³³ The foreign currency gathered from the exporters is then collected by the State Administration of Foreign Exchange, with most invested in U.S. government debt. (For an in-depth analysis of China's holdings of U.S. debt, see chap. 1, sec. 2, of this Report.)

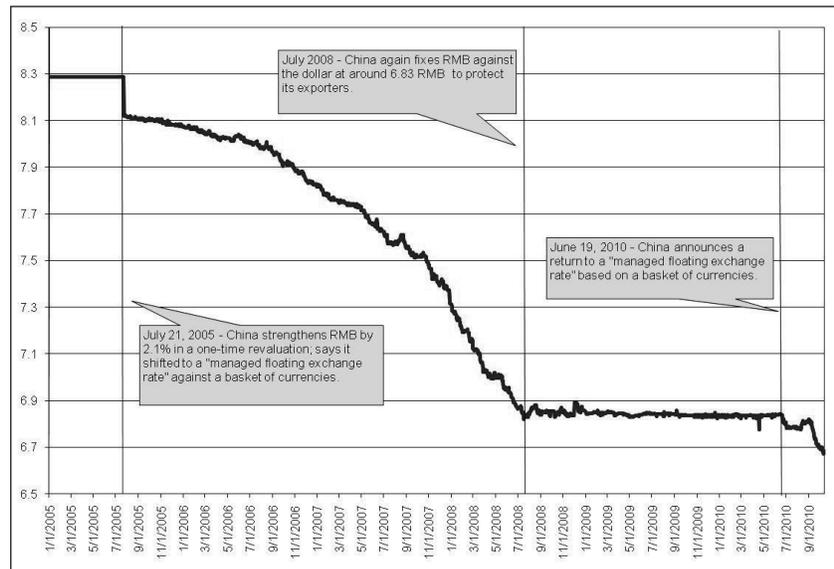
In August 2010, the State Administration of Foreign Exchange announced a one-year trial program, due to launch in October 2010, which will allow select exporters to keep some of their foreign currency earnings offshore. The program is very limited, with only 60 exporters in Beijing and the provinces of Guangdong, Shandong, and Jiangsu allowed to retain a designated fraction of their foreign exchange earnings overseas instead of surrendering all of them to the State Administration of Foreign Exchange.³⁴

Between July 2005 and the summer of 2008, the RMB appreciated by about 20 percent. However, in July 2008, as the effects of the global economic crisis became apparent, to safeguard China's

export advantage, Beijing stopped the appreciation of the RMB and returned to an effective peg at around 6.83 to the dollar (see figure 2).

As the global economic crisis has continued, China has become the target of ever-sharper criticism that its currency policies are causing widespread harm. U.S. Federal Reserve Chairman Ben Bernanke, answering questions at a Senate Banking Committee hearing, said Chinese currency effectively subsidizes China's exports.³⁵ C. Fred Bergsten, president of the Peterson Institute of International Economics, has called RMB undervaluation "a blatant form of protectionism . . . which subsidizes all Chinese exports 25 to 40 percent [and] places the equivalent of a 25 to 40 percent tariff on all Chinese imports."³⁶ Developing countries have joined the chorus of opposition to the RMB's undervaluation. Central bank governors of India and Brazil backed a stronger RMB during the June 26–27, 2010, Group of 20 nations (G–20) Summit in Toronto, Canada.³⁷

China, meanwhile, denies that its exchange rate practices are to blame for the economic woes of its trade partners. In his annual news conference, Chinese Premier Wen said, "First of all, I do not think the [RMB] is undervalued," adding that China is "opposed to countries pointing fingers at each other or taking strong measures to force other countries to appreciate their currencies."³⁸ At the same conference, in a reference to President Obama's goal to double U.S. exports over five years, Premier Wen said that while he could understand the desire of some countries "to increase their share of exports," he could not understand "the practice of depreciating one's own currency and attempting to press other countries to appreciate their own currencies solely for the purpose of increasing one's own exports." He added, "This kind of practice, I think, is a kind of trade protectionism."³⁹

Figure 2: China's RMB against the U.S. Dollar Exchange Rate, 2005–2010

Source: Oanda.com, "FX history: historical currency exchange rate" (October 14, 2010).

On June 19, 2010, a week ahead of the G-20 meeting in Toronto, China's central bank issued a brief statement that promised more flexibility in its currency while maintaining "the RMB exchange rate basically stable."⁴⁰ The announcement did not list any specific measures, but it was widely interpreted as meaning that China would let the RMB resume a gradual appreciation against the U.S. dollar for the first time since being repegged in 2008.

The move was widely praised by global leaders. Dominique Strauss-Kahn, the managing director of the International Monetary Fund (IMF), welcomed the news, saying a stronger Chinese currency "will help increase Chinese household income and provide the incentives necessary to reorient investment toward industries that serve the Chinese consumer."⁴¹ U.S. Treasury Secretary Timothy Geithner said the United States welcomed "China's decision to increase the flexibility of its exchange rate" but promised to "watch closely" how much the RMB is allowed to appreciate.⁴² President Obama responded that the "proof of the pudding is going to be in the eating."⁴³ So far, the global community's expectations for a significant RMB adjustment have not been borne out.

Although it was welcomed by global leaders, Beijing's June 19 announcement lacks any particulars on timing and mechanisms and is filled with contradictions. Beijing promises to reference "a basket of currencies" in determining the value of the RMB but does not identify the composition of the basket. The assertion that the People's Bank of China will "enhance the RMB exchange rate flexibility" is then followed by a promise to "maintain the RMB exchange rate basically stable." The new policy also specifically rejects the idea of widening the bands in which the RMB trades (cur-

rently ± 0.5 percent per day), which is the litmus test of a move to a market-based exchange rate.⁴⁴ Instead, Beijing has reverted to its previous policy of each day setting a new value (i.e., a reference rate) that does not necessarily match the closing price of the previous day and then allowing some daily fluctuations within the band.⁴⁵

Despite the Chinese government's minimal actions to revalue the RMB since the announcement, the Obama Administration declined to label China a currency manipulator in the Treasury's semi-annual report to Congress on exchange rates (due on April 15, 2010, but delayed until July 8).⁴⁶ The report instead said that the RMB "remains undervalued" but called China's policy shift on the exchange rate "a significant development."⁴⁷

The IMF produced a weak assessment of the Chinese currency that also avoided a judgment that China had deliberately undervalued the currency in order to gain an export advantage. The IMF's 2010 Article IV Consultations report on China* showed that the IMF staff concluded that the RMB "remains substantially below the level that is consistent with medium-term fundamentals" but went no farther in assessing China's goals in devaluing its currency.⁴⁸ The IMF's executive board was divided on the issue. Several directors agreed that the exchange rate is undervalued. However, a number of others disagreed with the staff's assessment of the level of the exchange rate, noting that "it is based on uncertain forecasts of the current account surplus," according to the IMF public information notice.⁴⁹ The disagreement among the board reduced the pressure on China to further revalue the RMB. Regardless, the IMF's tools to intervene in the currency debate are limited.⁵⁰ China is one of the IMF's bigger shareholder countries.⁵¹

Since the June 19 announcement, the RMB has appreciated by 2.3 percent (as of October 13, 2010).⁵² The U.S. trade deficit with China in August 2010 hit its highest level on record, spurring Congressional pressure on Beijing to accelerate the appreciation of the currency. Eleven U.S. Senators wrote a letter to President Obama on August 4, 2010, urging the administration to take tougher measures to address "unfairly subsidized exports" by countries such as China.⁵³

Responding to mounting international criticism of the insignificant appreciation of the RMB, China has defended its go-slow policy. "The [RMB] doesn't have a key role to play in rebalancing bilateral trade between the U.S. and China," Hu Xiaolian, a deputy governor of the People's Bank of China, said in an interview with the *Wall Street Journal*. "I don't think excessive argument and criticism on this issue will help."⁵⁴

On September 29, 2010, the U.S. House of Representatives passed by a vote of 348 to 79 legislation that would allow the Commerce Department to penalize Chinese currency undervaluation.⁵⁵

* Under Article IV of the IMF's Articles of Agreement, the IMF holds bilateral discussions with members, usually every year. A staff team visits the country, collects economic and financial information, and discusses with officials the country's economic developments and policies. On return to headquarters, the staff prepares a report, which forms the basis for discussion by the executive board. At the conclusion of the discussion, the managing director, as chairman of the board, summarizes the views of executive directors, and this summary is transmitted to the country's authorities. IMF, "Article IV—Obligations Regarding Exchange Arrangements," *Articles of Agreement of the International Monetary Fund* (Washington, DC). <http://www.imf.org/external/pubs/ft/aa/aa04.htm>.

The Currency Reform for Fair Trade Act (H.R. 2378) would allow the administration to use estimates of currency undervaluation to calculate countervailing duties on imports from China and other countries whose currencies are undervalued.⁵⁶ The U.S. Senate is also considering currency legislation.⁵⁷

Further Developments in the RMB Internationalization

Several advantages accrue to a country that conducts trade and settles accounts in its own currency. Due to the global use of the dollar as a reserve currency, the United States, for example, can borrow in dollars (through the sale of dollar-denominated U.S. government bonds) without fear that a fall in the dollar's value will increase U.S. debt. The United States also can trade in dollars in the international markets. China aspires to these benefits. In a recent essay, People's Bank of China Deputy Governor Hu Xiaolian wrote that "wider use of the [RMB] in foreign trade and investment can help importers and exporters control costs and reduce exchange-rate risks."⁵⁸

Transforming the RMB into an international, or at least regional, reserve currency, thus challenging the dominance of the U.S. dollar, may take years. But China is slowly introducing policy changes and reforms to move in that direction. Last year, Beijing signed currency swap agreements worth around 800 billion RMB (about \$117 billion) with seven countries and regions.⁵⁹ This year, China followed with more steps in that direction, including a currency swap deal with Iceland, worth more than \$500 million, and RMB exchanges with the Malaysian ringgit.⁶⁰ To date, less than a hundredth of a percent of China's international trade is conducted with RMB.⁶¹

In June 2010, China's State Council approved a plan to expand the RMB trade settlement program to 20 provinces and municipalities.⁶² The RMB-settlement program, started in July 2009, initially allowed companies in Shanghai and the southern province of Guangdong to use RMB instead of U.S. dollars when trading with companies in Hong Kong, Macau, and Association of Southeast Asian Nations (ASEAN) countries.

In July 2010, Chinese regulators lifted restrictions blocking the free flow of RMB in Hong Kong. Any foreign company now can open a RMB bank account in Hong Kong and exchange currency for any purpose, while Hong Kong can create investment products denominated in the Chinese currency. Restrictions on the type of corporation that can be granted RMB loans or the type of loans that can be extended have also been removed.⁶³

On August 17, 2010, the People's Bank of China said that to "encourage cross-border [RMB] trade settlement" and "broaden investment channels for [RMB] to flow back [to China]" it has launched a pilot program that will allow some RMB held offshore to be invested in China's interbank bond market, where most government and corporate debt trades.⁶⁴ Foreign financial institutions, including central banks and overseas lenders, are currently only able to invest the RMB they already hold onshore and are not allowed to participate in the 19.5 trillion RMB (\$2.87 trillion) interbank bond market.⁶⁵ This program may allow companies outside of China, which are receiving payments in RMB but have few places to hold the currency, to direct the funds back into the local bond market.⁶⁶

A number of the world's biggest banks—including Citigroup and JPMorgan—have launched international “road shows” promoting the use of the RMB instead of the U.S. dollar for trade deals with China. HSBC and Standard Chartered, for example, are offering discounted transaction fees and other financial incentives to companies that choose to settle trade in the RMB.⁶⁷ Moreover, Chinese central bank officials accompanied Standard Chartered bankers on a road show to Korea and Japan in June 2010.⁶⁸ Taking advantage of the new rules, McDonald's became the first foreign nonfinancial company to sell RMB-denominated bonds (though the amount was quite small, 200 million RMB, or \$29 million).⁶⁹

However, none of these pilot programs undertaken by China to promote the use of the RMB is likely to have a significant immediate effect on either the dollar or the RMB. Hu Xiaolian dampened expectations of a substantial change, noting that less than 1 percent of China's trade is currently denominated in the RMB and that the RMB “has a long distance to go before it can become an international currency.”⁷⁰ Indeed, by the end of June 2010, about \$10 billion worth of China's crossborder trade was denominated in RMB, 0.004 percent of the country's \$2.8 trillion in total trade last year.⁷¹ Many international companies remain reluctant to hold the RMB because it has limited utility outside of China. However, by far the biggest impediment to the RMB's internationalization is the Chinese government's unwillingness to relax capital controls and allow the RMB to react to the laws of supply and demand.

U.S.-China Bilateral Dialogues and Multilateral Engagement

The U.S.-China Strategic and Economic Dialogue

The United States and China have a variety of approaches, both formal and informal, to resolve problems. The two countries raise bilateral concerns through high-level government exchanges such as the Strategic and Economic Dialogue (S&ED) and the Joint Commission on Commerce and Trade, and the World Trade Organization's (WTO) dispute settlement process (see chap. 1, sec. 3, for a look at China's WTO compliance).

Although more than 200 U.S. officials converged on Beijing for the May 24–25 Strategic and Economic Dialogue, the United States failed to secure any significant outcomes. The U.S. Treasury Department issued a joint fact sheet summarizing major points of agreement between the two countries, but it contained few specifics.⁷² Following the talks, both sides claimed victories on China's exchange rate regime. U.S. Treasury Secretary Timothy Geithner said the United States “welcome[d] the fact that China's leaders have recognized that reform of the exchange rate is an important part of their broader reform agenda,” adding that it was “of course, China's choice.”⁷³ At the same time, Chinese Assistant Finance Minister Zhu Guangyao said the United States “understands that China will independently decide on the specific steps of its exchange rate reforms, based on its own interests, taking into account world economic conditions and China's own development trends.”⁷⁴ The next month, China made a currency policy announcement a week before the G–20 Summit.

China's policy of encouraging "indigenous innovation," a facet of China's overall industrial policy, was another major topic of discussion at the May 24–25 Strategic and Economic Dialogue. China and the United States committed to innovation policies "consistent with strong principles, including nondiscrimination, intellectual property rights protection, market competition, and no government interference in technology transfer," but this phrase directly contradicts China's promotion of "indigenous innovation." For example, Undersecretary of Commerce for International Trade Francisco Sánchez said China did not agree to a U.S. request to suspend its indigenous innovation policy.⁷⁵ (For a detailed look at China's indigenous innovation policy, see chap. 1, sec. 3, of this Report. For a discussion of China's policies for promotion of its green technology sector, see chap. 4, sec. 2, of this Report.)

The Group of 20 Summit in Toronto, Canada

Prior to the Group of 20 Summit in Toronto on June 26–27, 2010, discontent over China's currency, trade, and industrial policies had been growing. In a letter to the rest of the G–20, leaders of Canada, South Korea, the United Kingdom, the United States, and France called for better cooperation to avoid future crises and a return to sustained growth and employment. They also stressed the need "to ensure that our fiscal, monetary, foreign exchange, trade and structural policies are collectively consistent with strong, sustainable and balanced growth."⁷⁶ Coming in the middle of a debate about slow progress toward reducing trade imbalances, the letter was interpreted as a veiled rebuke to China for backsliding on economic agreements and continued RMB undervaluation.⁷⁷ In the U.S. Congress, renewed calls were made and several bills were introduced to address concerns about China's currency policy.⁷⁸

Beijing responded to growing censure by saying that the G–20 meeting should not be used for "finger-pointing" or as a platform to criticize China's currency policy.⁷⁹ A Foreign Ministry spokesperson, for example, said that in China's view, "it would be inappropriate to discuss the [RMB] exchange rate in the context of the G–20 meeting."⁸⁰ Tension was defused for the moment, however, when, a week ahead of the G20 summit, China announced a change in its currency policy (see the section on China's exchange rate regime, above).

Implications for the United States

The U.S. trade deficit with China poses unprecedented challenges to U.S. economic health and security. The openness of the U.S. market, coupled with the lack of market access to China, means that while Chinese exports have streamed into the United States, the reverse movement of goods and services has not happened. At the same time, China required, first through law and now through practice, technology transfer in exchange for market access, which has led to a transfer of research and development facilities and technological know-how from the U.S. companies.⁸¹ In recent years foreign companies have expressed the concern that they are gradually being marginalized by Chinese government policies that favor domestic Chinese companies once technology has been extracted. To the extent that foreign companies are able to

gain access to the Chinese market, they do so under the conditions set by the Chinese government, and they have repeatedly complained of inconsistent rules and regulations, government procurement biased toward local companies, and insufficient intellectual property rights protection.

The U.S. trade deficit is a drag on the U.S. economy, which is made especially acute when combined with the effects of the global financial crisis. For example, in the second quarter of 2010, the U.S. global trade deficit subtracted 3.5 percentage points from U.S. GDP growth, which totaled just 1.7 percent at an annual rate.⁸² Without the drag from the global trade deficit, the U.S. economy would have been growing at an annualized rate of more than 5 percent in the quarter.⁸³ China plays a major role in this problem: The U.S. trade deficit in goods with China in the second quarter was \$67.8 billion, 40 percent of America's overall trade deficit in goods of \$169.6 billion with the world.⁸⁴

Several economists have attempted to quantify the jobs lost to protracted trade deficits with China, although their conclusions vary. C. Fred Bergsten, director of the Peterson Institute for International Economics, estimated that if China were to eliminate its currency misalignment:

*that would reduce the U.S. global current account deficit \$100 billion to \$150 billion. Every \$1 billion of exports supports about 6,000 to 8,000 (mainly high-paying manufacturing) jobs in the United States. Hence, such a trade correction would generate an additional 600,000 to 1.2 million jobs.*⁸⁵

Nobel Prize-winning economist Paul Krugman stated that China follows a “mercantilist policy, keeping its trade surplus artificially high,” which gives Chinese manufacturing “a large cost advantage over its rivals, leading to huge trade surpluses.”⁸⁶ Dr. Krugman wrote that his “back-of-the-envelope calculations suggest that for the next couple of years Chinese mercantilism may end up reducing U.S. employment by around 1.4 million jobs.”⁸⁷

China's management of its exchange rate regime is a major contributing factor to the U.S. trade deficit with China. The undervaluation of the RMB effectively subsidizes all Chinese exports and places a de facto tariff on all Chinese imports and also incentivizes U.S. companies to outsource production to China. Skeptics argue that because the U.S. trade deficit with China did not improve from 2005 to 2008 despite the rise in the RMB, appreciation of the RMB is therefore not an effective remedy for the U.S. trade deficit. However, this interpretation ignores several important considerations. By undervaluing the RMB, the Chinese government suppressed household wealth formation, curbing Chinese consumption and pushing down the demand for imports. During 2005–2008, as the RMB finally started appreciating, China counterbalanced the appreciation by lowering real interest rates and expanding credit, which “[decreased] household income faster than raising the [RMB] [increased] it.”⁸⁸ In fact, during 2005–2008, consumption as a percentage of the overall economy dropped. There were other important considerations at play. Although the 20 percent rise in the RMB over three years was significant, China maintained its capital

controls and refused to allow the currency to float freely, which would have caused an even faster appreciation, given the ballooning trade surplus. In addition, currency movements are subject to a time lag for the price of the currency to affect the deficit.⁸⁹

A research paper by William R. Cline, senior fellow at the Peterson Institute for International Economics, shows that the strength of the RMB has a predictable effect on the bilateral trade balance with the United States. According to Dr. Cline's calculations, a 10 percent real effective appreciation of the RMB would lead to a reduction in the U.S. current account deficit of between \$22 billion and \$63 billion per year, depending on whether China's regional trade partners (who frequently track China's exchange rate moves) follow China's example.⁹⁰

Conclusions

- For the first eight months of 2010, China's goods exports to the United States were \$229.2 billion, while U.S. goods exports to China were \$55.8 billion, with the U.S. trade deficit in goods at \$173.4 billion, an increase of 20.6 percent over the same period in 2009 (\$143.8 billion). This constitutes a four-to-one ratio of Chinese exports to its imports from the United States.
- The U.S. trade deficit with China is a major drag on the U.S. economy. Despite the global financial crisis, China gained an even greater share of the U.S. trade deficit, while the overall U.S. trade deficit declined. The deficit in goods with China is by far the largest among U.S. trading partners: 45 percent of the total in 2009 and 41.5 percent of the total for the first eight months of 2010.
- China's government policies limit the ability of foreign companies to obtain Chinese government procurement contracts and to make sales to China's state-owned enterprises, most recently through China's new "indigenous innovation" policy. Companies in the United States and Europe have protested this discriminatory treatment.
- Since June 19, 2010, the RMB appreciated by just 2.3 percent against the dollar (as of October 2010). The RMB remains substantially undervalued against the dollar, which subsidizes Chinese exporters to the detriment of U.S. domestic producers. China's undervalued currency also helps attract foreign companies to locate production in China.
- China continues to pursue a long-term goal of making the RMB a more international currency, starting with the introduction of several policies designed to make trade and bond issuance in the RMB easier, particularly among China's Asian neighbors. China's reforms thus far have had little effect on the RMB's use in international trade.
- As in previous years, the United States engaged China at several bilateral and multilateral negotiations, including the Strategic and Economic Dialogue and meetings of the Group of 20, to address China's discriminatory trade policies, but again failed in 2010 to secure any significant agreements or Chinese policy changes.

SECTION 2: THE IMPLICATIONS AND REPERCUSSIONS OF CHINA'S HOLDINGS OF U.S. DEBT

Introduction

Over the past decade, the U.S. government has been incurring a rapidly rising national debt as the gap between tax collections and spending has widened. The 46 percent increase in government debt held by the public during this period was financed by the sale through auction of ever-larger amounts of Treasury securities.* At the same time, purchases of Treasury securities by foreign central banks have increased while purchases by individuals have decreased.† Of the \$7.5 trillion in publicly held U.S. Treasury securities at the end of March 2010, \$3.9 trillion, or 52 percent, was held by foreigners.⁹¹ The Chinese government, through its central bank, has become the single largest foreign purchaser of U.S. government debt to finance the federal government's budget deficit. In July 2010, for example, China and Hong Kong together held \$982 billion of the outstanding, officially registered U.S. Treasury securities. Thus, China accounted for a quarter of all the publicly held Treasuries owned by foreigners and about 12 percent of the overall publicly held Treasury debt.⁹²

China's total purchase of U.S. government debt, including large-scale purchases of the bonds of U.S. government-owned Fannie Mae and Freddie Mac and unregistered purchases of Treasuries through Caribbean tax havens and through the London currency market, are estimated to be far larger, perhaps double the amount of officially registered purchases.⁹³

The growing U.S. debt held by foreign governments, particularly that of China, has raised "the fear that if foreigners suddenly decided to stop holding U.S. Treasury securities or decided to diversify their holdings, the dollar could plummet in value and interest rates would rise," as noted in a March 2010 report by the Congressional Research Service. Others are concerned that "China's accumulation of hard currency assets will allow it to undertake activities in the foreign affairs and military realms that are not in the U.S. interest."⁹⁴ Typical of the concern that the United States is

*Debt held by the public increased from \$5.7 trillion in January 2000 to \$8.4 trillion in August 2010. Source: U.S. Department of the Treasury, *Monthly Statement of the Public Debt of the United States* (Washington, DC: U.S. Government Printing Office, August 31, 2010). <http://www.treasurydirect.gov/govt/reports/pd/mspd/2010/opds072010.pdf>.

†Debt held by the public consists of marketable U.S. Treasury bonds, bills, notes, and savings bonds sold to individuals, corporations, state and local governments, and foreign governments. These securities can be resold on the secondary market. By contrast, debt held as "intragovernmental holdings" does not consist of marketable bonds. Such debt is owed by one agency to another, principally to the Social Security and Medicare trust funds. The debt calculations within this Annual Report refer to the debt held by the public in the form of marketable U.S. Treasury securities, as defined by the U.S. Department of the Treasury.

increasingly beholden to China is this warning in the *Wall Street Journal*: “At some point, the United States may have to bend its policies before either an implicit or explicit Chinese threat to stop the merry-go-round. Just this weekend, for example, the United States angered China by agreeing to sell Taiwan \$6.4 billion in arms. At some point, will the United States face economic servitude to China that would make such a policy decision impossible?”⁹⁵

While there has been considerable press coverage and public debate raising this concern, there has been little analysis of the likelihood of such a move. In fact, China is unlikely to choose to sell its dollar holdings. There are no adequate substitutes in the international currency markets for the dollar, which is the world’s dominant reserve currency. If China were to decide to sell its Treasury securities, China would lose billions of dollars and also have to abandon the very system that supports its export-led economy.

The Relationship between China’s Holdings of U.S. Debt and Its Influence

There is anecdotal evidence that Chinese officials perceive that China’s self-described role as “America’s banker” has granted the Chinese government at least some leverage over Washington’s policy decisions. Some American officials may also have that perception. Witnesses at a February 25, 2010, hearing before the Commission warned that U.S. government leaders might falsely assume that they are in a dramatically weakened position because of U.S. debt held by China. U.S. government officials might be hesitant to criticize China’s economic policies, human rights transgressions, or aggressive acts toward Taiwan, for example, in the fear that the Chinese government may stop buying U.S. debt instruments.

The danger is that misperceptions on both sides can lead to miscalculations by officials. In early 2009, as the administration sent its first cabinet-level delegations to China, the United States sought to downplay long-standing contentious issues and instead to concentrate on areas of mutual interest, such as the economy. “You had Secretary of State (Hillary) Clinton and then Secretary of the Treasury (Timothy) Geithner almost pleading for China to buy U.S. bonds,” said Commission witness and political scientist Daniel W. Drezner of Tufts University. “So I think that might have sent an errant signal to the Chinese,” he said.⁹⁶

While in China in February 2009, Secretary Clinton did not raise the human rights issue but did praise the Chinese government for its willingness to continue to hold U.S. bonds. U.S. Treasury Secretary Timothy Geithner also sought to reassure Chinese audiences during his first trip to China in May 2009 that U.S. assets held by China “are very safe.”

History has demonstrated that lending nations have sought to use financial leverage to achieve foreign policy goals. After Britain and France occupied the Suez Canal in 1956, the Eisenhower Administration prevailed on Britain to give up the canal to United Nations (UN) supervision in part by threatening to withhold further purchases of British debt. Facing the collapse of the pound sterling, Britain capitulated.⁹⁷ “The lesson of Suez for the United States today is clear: political might is often linked to financial

might, and a debtor's capacity to project military power hinges on the support of its creditors," wrote then Council on Foreign Relations economist Brad Setser in *Sovereign Wealth and Sovereign Power: the Strategic Consequences of American Indebtedness*.⁹⁸ Representative Frank R. Wolf, testifying before the Commission, also noted the parallels between Great Britain in 1956 and the United States in 2010. "Only this time, the U.S. is in a much more precarious position," Representative Wolf said. "Rather than operating from a place of financial strength, we are increasingly at the mercy of foreign lenders."⁹⁹ Even America's military strength may be at risk if creditors cut lending, some believe. China's financing of the U.S. government "facilitates the U.S. role as the world's hegemonic leader," according to Clyde Prestowitz, president of the Economic Strategy Institute in Washington and a witness at the Commission's February 25 hearing. Said Mr. Prestowitz:

*No way would we be able to afford to maintain troops in Afghanistan and Iraq and, indeed, ironically, patrol the Western Pacific with the Seventh Fleet around China if it weren't for Chinese money. We wouldn't be able to rebuild New Orleans, or do lots of the other things that we do, without Chinese money. So, in many respects, it facilitates us, but, of course, it also has inevitably the burden of obligation.*¹⁰⁰

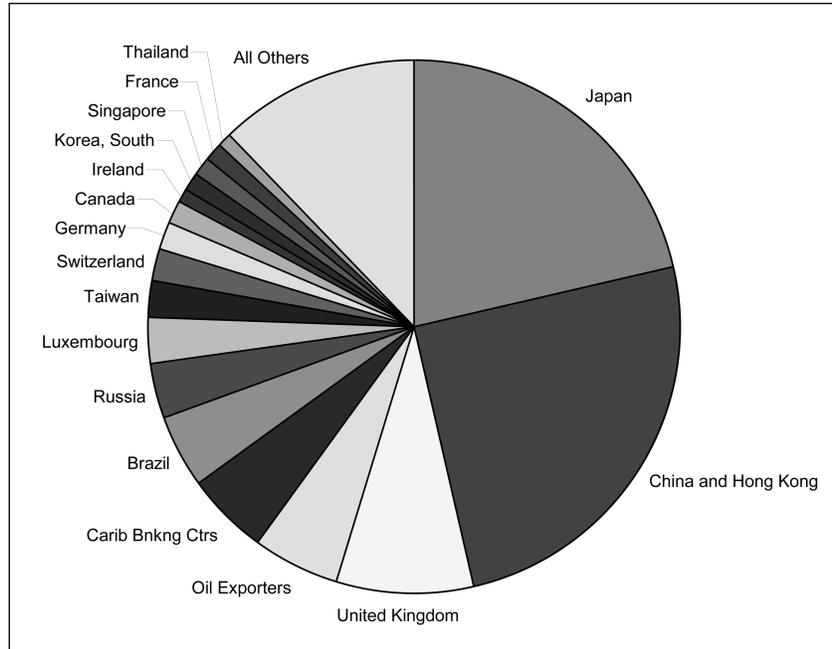
Nevertheless, there is no economic justification for the view that the United States is beholden to China for its lending, according to testimony at the Commission's February 25 hearing. As described below, China's purchases of U.S. Treasuries are part of China's overall industrial policy and its export-based economic strategy. Far from aiding the United States, the Chinese policy, with its emphasis on running large trade surpluses, actually places the U.S. economy at a disadvantage. China is simply acting in its own interest when it seeks a return on its export-driven dollar earnings by purchasing U.S. Treasuries. "China has two choices: buy U.S. bonds or build a really big mattress," said Derek Scissors, an economist at the Heritage Foundation, who testified at the February 25 hearing. "Those are the only two options for their money (dollars)."¹⁰¹

There are other reasons for China to continue to buy U.S. Treasuries. For example, China's dollar holdings are so large that only the U.S. dollar bond market has the size and liquidity to absorb such a large amount of currency. The People's Bank of China holds in dollar-denominated debt securities an estimated 70 percent of its self-reported \$2.65 trillion in foreign exchange reserves, or \$1.85 trillion.¹⁰² Add dollar investments by China's sovereign wealth fund and its state-owned companies and other government branches, and the total of dollar investments by the state sector exceeds \$3 trillion, according to estimates by Dr. Drezner.

Any substantial sale of so much dollar-denominated debt would reduce, at least temporarily, the dollar's value on international markets. As the dollar's value fell, so too would the value of dollar-denominated securities held by the Chinese government. "A decision by China to switch away from the dollar would lead to a dramatic fall in the value of its sizeable (dollar) portfolio of external reserves," Dr. Drezner told the Commission. He calculated that a

10 percent drop in the value of China's dollar holdings would result in a loss of about \$150 billion, roughly equal to 3 percent of China's gross domestic product (GDP).¹⁰³

Figure 1: Major Foreign Holders of U.S. Treasury Securities (December 2009) Total: \$2.7 Trillion



Source: U.S. Department of the Treasury, *Treasury International Capital System* (Washington, DC: 2009).

China's Rationale for Buying U.S. Government Debt

The People's Republic of China, along with Hong Kong, has officially reported about \$1 trillion in holdings of U.S. Treasury securities, making China the U.S. government's largest creditor nation. But that does not reflect the entirety of Chinese government investment in U.S. government bonds. Some Chinese purchases are made through brokers or other third parties and are therefore not attributed to China in official U.S. statistics. The U.S. Treasury Department keeps track of the location of Treasury bond sales but not necessarily the ultimate owner.

The U.S. Treasury holdings are only a portion of the total Chinese investment in U.S. securities, notes Simon Johnson, an economist at the Massachusetts Institute of Technology and former chief economist at the International Monetary Fund (IMF).¹⁰⁴ The official accounting does not include U.S. Treasury securities purchased by the Chinese government through dealers in London, where the State Administration of Foreign Exchange, a subsidiary of the People's Bank of China, maintains an office. Nor are China's purchases registered officially when they are made through other inter-

national intermediaries in the Cayman Islands or the British Virgin Islands or similar tax havens. Rather, they appear as purchases by the particular tax haven. The official U.S. Treasury figures also do not include China's holdings of Fannie Mae and Freddie Mac bonds, despite the fact that both companies are now U.S. government owned.*

China's Treasury Purchases Are Strategic

Most of the purchases of U.S. dollar-denominated debt securities were funded from China's large current account surpluses with the United States over the past decade. This surplus is the result of China's dollar earnings from its exports and dollars sent to China to invest in new plant and equipment. This surplus grew nearly sixfold over the decade, rising from a total cumulative \$351 billion in 1999 to \$2 trillion in 2009. By Chinese law, these dollars are to be exchanged at China's state-owned banks for local currency. The dollars are then used to buy U.S. dollar-denominated debt, principally U.S. Treasuries.

China's willingness to reinvest its export earnings primarily in low-interest-bearing U.S. Treasury securities has helped create the misperception that China intends to loan money to the United States as a favor or to gain influence in Washington. In fact, the government of China purchases U.S. Treasuries as a safe investment vehicle for its accumulated dollars and as part of its strict capital controls designed to maintain an artificial, government-set exchange rate between the renminbi (RMB) and the dollar.

Some Chinese officials have perpetuated the notion that China is principally motivated by a desire to lend to the United States. These officials have warned Washington that continued purchases of U.S. Treasuries might be contingent upon good relations with Beijing. Gao Xiqing, president of the China Investment Corporation, China's \$300 billion sovereign wealth fund, noted in an interview with American journalist James Fallows that:

*The simple truth today is that your economy is built on the global economy. And it's built on the support, the gratuitous support, of a lot of countries. So why don't you come over and . . . I won't say kowtow, but at least, be nice to the countries that lend you money.*¹⁰⁵

Chinese Premier Wen Jiabao and other top officials have taken a slightly different tack, lecturing Washington on its profligacy. The implication is that the government of China will stop investing in dollar-denominated debt if the United States allows inflation to reduce the value of China's investments. At a press conference at Beijing's Great Hall of the People, Premier Wen complained:

*We have lent a huge amount of money to the United States. I am a little bit worried. I request the U.S. to maintain its good credit, to honor its promises, and to guarantee the safety of China's assets.*¹⁰⁶

*Both government-chartered corporations are now owned by the federal government but were publicly owned and traded when the Chinese government purchased their debt prior to September 2008. U.S. Treasury figures do not reflect China's purchases of U.S. corporate bonds and U.S. equities.

“The Chinese have taken a very aggressive stance that the United States has become more dependent on China,” Eswar Prasad, a Cornell University economist and former head of the China desk at the International Monetary Fund told the Commission at its February 25 hearing. “This narrative, in my view, has been abetted by the U.S. Administration, which has seemed almost to be going to the Chinese and arguing that the Chinese should please continue financing our deficit. I think the U.S. has more power than it has been willing to use.”¹⁰⁷

In one widely quoted instance, during her first trip to China, Secretary Clinton told a Chinese television audience that “the Chinese know that, in order to start exporting again to its biggest market, namely the United States, the United States has to take some very drastic measures with this stimulus package, which means we have to incur more debt. . . . It would not be in China’s interest if we were unable to get our economy moving again. So, by continuing to support the American Treasury instruments, the Chinese are recognizing our interconnection.”¹⁰⁸

Secretary Clinton did make the important point that was repeated by several witnesses during the February 25 hearing: China’s purchase of U.S. government bonds is actually central to China’s overall economic strategy. China’s investment and export-led growth strategy depends on an undervalued RMB, which makes Chinese exports cheaper and attracts foreign investment. Former Federal Reserve Board Chairman Paul Volcker, for example, notes that China is simply acting in its own interest as it invests in U.S. Treasuries and not out of any warm feelings toward Washington:

*They hold all these dollars because they (the People’s Bank of China) chose to buy the dollars, and they didn’t want to sell the dollars because they didn’t want to appreciate their currency. It was a very simple calculation on their part, so they shouldn’t come around blaming it all on us.*¹⁰⁹

In sum, witnesses and other experts generally agree that China purchases U.S. Treasuries to serve China’s own interests.

The Implications of a Chinese Sale of U.S. Bonds

A decision by China to dump the dollar as its main vehicle for foreign reserves theoretically would carry consequences for the United States, particularly if other countries holding dollars followed China’s lead. The United States benefits in several ways from the dollar’s status as the world’s preferred reserve currency. Because the U.S. government can borrow in dollars, it does not face the risk that fluctuations in currency values could cause the government to owe more principal than it borrowed. Because foreign governments generally hold their dollar reserves in Treasury securities, this lowers the interest rate that the U.S. government otherwise would pay to lenders. The McKinsey Global Institute calculates the benefit of such recent foreign lending as a savings of \$90 billion annually.¹¹⁰ The U.S. government also benefits from the use of U.S. currency as a globally accepted medium of exchange, because the government can print the money and spend it without having to pay interest, a practice known as “seigniorage.”¹¹¹ The

vast majority of outstanding U.S. currency, \$666 billion, was printed in \$100 bills and is now mostly held by individuals in other countries.¹¹² Those holding this currency are essentially making an interest-free loan to the U.S. government.

China's purchases of U.S. Treasuries serve Beijing's current economic goals of maintaining high growth by fostering exports and investment. China could not cease this form of lending without affecting the current basis for its economic growth, exports and investment into China. Suggestions by Chinese officials that the central bank might sell its current dollar-denominated bonds necessarily would imply a dramatic shift away from the export-led growth that China has depended upon throughout the past decade. A third threat, that China will move its export earnings into a different reserve currency, is not credible given the lack of an alternative.

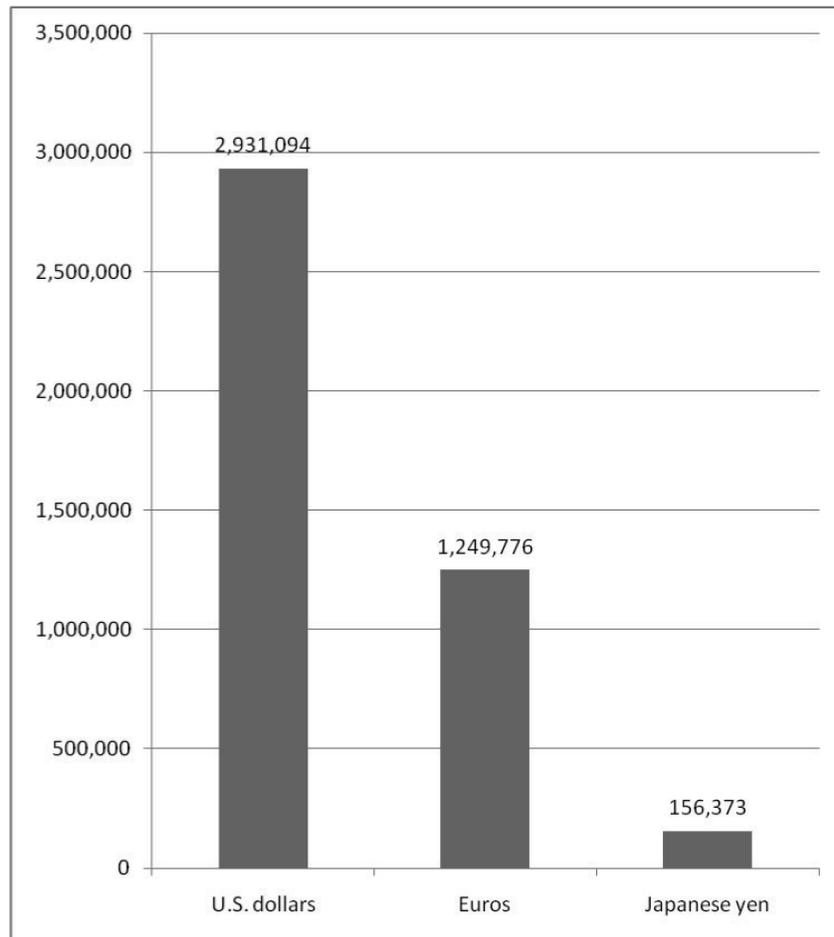
If China were to cease using its huge yearly dollar earnings from exports to buy U.S. Treasury securities and instead hold the actual currency and forgo the interest it otherwise earns on Treasury securities, that would also be the equivalent of an interest-free loan to the United States. The Treasury Department might simply print the number of dollars held by China and use that to buy Treasuries, according to Peter Morici, former chief economist at the U.S. International Trade Commission.¹¹³ Another reason why China is unlikely to stop buying and simply hold dollars: China depends on the interest it receives from its Treasury holdings to justify to its citizens its huge investment in U.S. assets. In addition, Europeans and Japanese would likely step in to buy U.S. Treasuries if China were to sell.

If China were to switch from Treasuries to U.S. corporate bonds, it would likely cause some temporary increase in the interest rate that the U.S. government would pay. But the increase would be offset quickly by a reduction in the U.S. corporate bond rate and, eventually, the Treasury rate as "those who sold assets to China's central bank receive money that becomes part of the larger pool that funds U.S. Treasury obligations," notes Peking University's Guanghua School of Management economist Michael Pettis.¹¹⁴

A wholesale shift to the two other reserve currencies, the euro or the yen, is not feasible, because neither currency circulates sufficiently to provide a real alternative to the dollar, which constitutes 62 percent¹¹⁵ of the world's reported currency reserves.* The dominance of the dollar in international markets is more pronounced when measured by currency transactions. The dollar was used in 85 percent of international currency transactions, while the euro was involved in fewer than half as many currency swaps—39 percent.¹¹⁶

*By contrast, the euro constituted 27 percent of reported reserves and the yen just 3 percent, according to the International Monetary Fund. For a longer explanation of the dollar's role as the world's reserve currency, see U.S.-China Economic and Security Review Commission, *2009 Annual Report to Congress* (Washington, DC: U.S. Government Printing Office, 2009), chapter 1, section 1, p. 25.

Figure 2: Global Currency Composition of Official Foreign Exchange Reserves (U.S. \$ millions)



Source: International Monetary Fund Statistics Department, *Currency Composition of Official Foreign Exchange Reserves Database and International Financial Statistics* (as of second quarter 2010) (Washington, DC).

Dr. Drezner noted in his February 25 testimony that:

If you don't have the dollar as the reserve currency, you're going to have to choose another one to be a reserve currency, and all of the other alternatives stink. There is just no other way to put it. ... Once you eliminate the euro as a possibility, all of the other currency options really are nonstarters. The yen, the pound, the Swiss franc, they're all too small. The possibility that China floated of the Special Drawing Right [SDR] (issued by the IMF) is comical in the sense that the SDR is really the Esperanto of international currencies. It's not an actual real international currency.¹¹⁷

Some economists have noted that even if China were to try to switch from the dollar as its reserve currency to the euro, that switch might also benefit the U.S. economy in one very specific way. Such a switch from the dollar would likely require China to drop its strict capital controls, allow the dollar to be traded within China, and allow the RMB to respond to the international currency market. Those dollars in the hands of Chinese citizens could then be used to purchase U.S. goods and services and to invest in the United States, activities that would likely reduce the U.S. trade deficit with China.¹¹⁸ “The changes they would make to stop having to buy our bonds would be in America’s interest,” said Dr. Scissors. He added:

What would happen immediately upon capital controls being lifted is the bilateral trade surplus that China runs, our trade deficit, would drop a great deal. In particular, it would be much harder for China to subsidize what would be otherwise inefficient state firms so that U.S. goods would have greater market access, and Chinese exports would decline. . . . They have to take their balance of payments surpluses and put them in U.S. bonds. If their balance of payments surpluses decline because they’ve liberalized and stopped subsidizing everything, stopped being mercantilist in this way, then they have less money to put into U.S. bonds.¹¹⁹

U.S. Options for a Course of Action

Witnesses suggested a variety of means to persuade or to force China to float the RMB or to, at least, allow it to rise in value. They included: (1) building a coalition of countries harmed by China’s trade practices and collectively pressuring China to reform; (2) bringing a complaint to the World Trade Organization alleging an illegal subsidy or alleging nullification and impairment of a previous trade agreement; (3) bringing a countervailing duty case against imports from China that benefitted from China’s currency manipulation; (4) appealing to the International Monetary Fund for enhanced surveillance of the RMB; (5) bringing the currency manipulation issue before the Group of 20 nations (G-20)¹²⁰; or (6) declaring an emergency and imposing a surcharge tariff on imports in order to halt the outflow of foreign currency reserves, as President Nixon once did.

Dr. Johnson, who was critical of the IMF’s lack of action on the Chinese currency issue, urged a new approach based on the G-20 and the World Trade Organization. Dr. Johnson and others suggested “a new multilateral process based around the World Trade Organization with legitimacy and authorization from the G-20.” He said that the IMF “has completely dropped the ball, and we need to find a new approach.”¹²¹

The 2010 report by the IMF on China was released in July. It showed that the IMF staff had concluded that the RMB “remains substantially below the level that is consistent with medium-term fundamentals” but that the IMF’s executive board was divided on the issue.¹²²

Added Dr. Johnson:

There's a limit to how much you should let countries do. There's a limit to what's fair, and there's a limit to what's reasonable, and China has gone beyond that. China is breaking the rules that it voluntarily agreed to when it joined the International Monetary Fund. There's no two ways around it. It has played the game well, so the IMF is not going to hold them accountable. We should recognize that; we should move on; we should find new mechanisms for holding them accountable in a responsible multilateral way, which is the way the U.S. has run the world economy, helped guide the world economy, since 1945, with great results.

To its credit, the G-20 did serve as a forum in 2009 to address structural imbalances in the global economy. In a statement aimed at the United States, the G-20 leaders admonished “members with sustained significant external deficits (to) pledge to undertake policies to support private savings and undertake fiscal consolidation while maintaining open markets and strengthening export sectors.” The G-20 statement directed at China urged Beijing “to strengthen domestic sources of growth ... (including) increasing investment, reducing financial markets distortions, boosting productivity in service sectors, improving social safety nets, and lifting constraints on demand growth.”¹²³

One witness, Dr. Scissors, emphasized that the U.S. Treasury Department should do a better job of collecting data about the foreign holders of U.S. Treasury securities. Current statistics, he noted, “don’t mean anything,” because China holds a considerable but unknown amount of Treasury securities and other bonds through securities exchanges in other countries. Such Treasury bonds do not appear in U.S. Treasury statistics as being owned by China, because they are tabulated according to their sales location rather than their ultimate owner. In addition, China holds other dollar-denominated bonds, principally “agency” bonds issued by Fannie Mae and Freddie Mac. In fact, according to the latest available figures from June 2008 quoted by Dr. Scissors, China held more of such agency debt than it did Treasury securities.

“Transparency is a boring issue, but we have to have it,” said Dr. Scissors. “If the Chinese change their rules, we’ve got to know what they’re doing. Right now we have a distorted discussion because we don’t know what they’re doing.”¹²⁴

Implications for the United States

The United States need not fear implied or explicit threats by China to diversify from U.S. Treasury securities, to sell its large hoard of Treasuries, or to switch from the dollar to a new reserve currency. China has chosen to invest its \$2.65 trillion in foreign exchange largely in dollars, because China considers this form of investment to be in its own interest. China does not invest in dollar holdings simply out of goodwill toward Washington. Chinese leaders, however, will occasionally suggest that they are willing to retaliate against the United States by using their Treasuries as leverage. But the dollar is the world’s unofficial reserve currency and has a history of stability and safety. The pool of dollar-denominated

debt investments is both liquid and deep. In addition, China's purchases of dollar-denominated debt are part of its system of capital controls, designed to keep the RMB undervalued as an aid to China's exports. For these reasons, China's threats to dump the dollar are not credible.

The United States would benefit from a more balanced trade relationship with China. Such a change would necessitate a revaluation of the RMB by allowing it to reach a market-determined value against the dollar. China has strongly resisted this reform. Both countries have, however, agreed within the G-20 framework to remove some of the impediments to a more balanced economic relationship. The United States has agreed to increase its level of savings and thereby reduce federal budget deficits. China has agreed to encourage domestic consumption instead of relying so strongly on exports and investment for future growth.

A more balanced relationship would benefit U.S. exporters who would have greater access to the Chinese market for their goods and services. This would help reduce the large U.S. trade deficit with China and would add jobs to the U.S. economy. A more balanced relationship would benefit the Chinese people by allowing them more choice in their investments and purchases. Greater government investments in education, pensions, and health care would also benefit Chinese citizens if China were to abandon its emphasis on exports.

Conclusions

- The United States need not fear a large sale of U.S. bonds by China nor a wholesale switch by China to investing in the bonds of another country. Because China holds such a large amount of dollar-denominated investments, including the bonds of U.S.-government owned Fannie Mae and Freddie Mac, and because the alternative investments in the euro and the yen are so limited, China has few alternatives to the dollar for its foreign reserves.
- Over the past decade, the government of the People's Republic of China has become the largest purchaser of U.S. debt. China implements a deliberate economic policy that relies on exports and foreign investment capital to amass a large current account surplus with the United States. That trade surplus is loaned back to the United States as part of China's deliberate policy.
- China manipulates the value of its currency, the RMB, by requiring its citizens, businesses, and exporters to trade their dollars for RMB. By limiting the dollars in circulation within China, the government can then set a daily exchange rate between the RMB and the dollar. China maintains an artificially low value for the RMB that is estimated to be between 20 percent and 40 percent lower than it would otherwise be, if it were allowed to respond to market forces.
- China's export-led growth strategy requires China to continue to run large trade surpluses with the United States and to recycle its accumulated dollars through the purchase of U.S. dollar-denominated securities. Recycling dollars back into the U.S. economy helps China to maintain the artificially low value of the

RMB. China's currency policy harms U.S. exporters and import-sensitive manufacturers in the United States though the policy aids consumers in the United States by keeping interest rates and prices low.

- A relaxation of China's currency policy would require China to end its capital controls. Easing China's capital controls would help to rebalance the economic relationship between the two countries.

SECTION 3: EVALUATING CHINA'S PAST AND FUTURE ROLE IN THE WORLD TRADE ORGANIZATION

Introduction

China joined the World Trade Organization (WTO) on December 11, 2001, with the strong support of both the U.S. administration and Congress, and many U.S.-based multinational corporations. Not only would the U.S. economy benefit from increased exports to China, they claimed, but China's accession to the WTO also would enhance U.S. national security, transform China's Communist Party and its authoritarian government, and open China to new ideas from the West, including democracy and human rights. The final stages of China's 13-year negotiation to join the WTO were conducted from 1988 through 2000 during the administrations of George H.W. Bush and Bill Clinton, both of whom strongly supported China's membership. During Congress's debate in 2000 on whether to grant China Permanent Normal Trade Relations (PNTR), a precursor to China's WTO accession, President Clinton extolled the importance to the United States of China's WTO membership: "Even though for me the economic choice is clear ... far, far more important to me are the moral and national security arguments."¹²⁵ Said Clinton:

Yes, it's a good economic deal. China has agreed to open its markets. ... All we give them is membership, and they do all the market opening. ... [B]y forcing China to slash subsidies and tariffs that protect inefficient industries, which the Communist Party has long used to exercise day-to-day control, by letting our high-tech companies in to bring the Internet and the information revolution to China, we will be unleashing forces that no totalitarian operation rooted in the last century's industrial society can control.

Large, U.S.-headquartered multinational businesses saw China as a major market and a major source of supply for all other markets, including the United States. They also anticipated that a China bound by the rules of the WTO would be a more stable place for investment.¹²⁶ On May 25, 2000, the day after the House of Representatives voted to give China PNTR, the *Wall Street Journal* noted that:

[W]hile the debate in Washington focused mainly on the probable lift for U.S. exports to China, many U.S. multinationals have something different in mind. 'This deal is about investment, not exports,' says Joseph Quinlan, an economist with Morgan Stanley Dean Witter & Co. 'U.S. foreign investment is about to overtake U.S. exports as the

*primary means by which U.S. companies deliver goods to China.*¹²⁷

The United States also had geopolitical goals—to work with China on major foreign policy objectives, including those involving North Korea, Iran, and possibly Taiwan, as well as to have a relatively stable and potentially positive relationship with a major emerging power.¹²⁸ President Clinton’s National Security Council advisor, Samuel Berger, raised the national security argument for supporting China’s WTO accession, saying:

*[T]his debate should not be defined as economic rights versus human rights—or economic security versus national security. That is a trap, a false choice. This agreement is just as vital ‘if not more vital’ to our national security as it is to our economic security. It is far more likely to move China in the right direction—not the wrong direction—on all of our other concerns. We can’t duck these issues by saying we’re only interested in talking about economics. If we are going to win this debate, we must be persuasive that it promotes both growth and jobs in America and progress toward change in China.*¹²⁹

As predicted, U.S.-China trade has grown rapidly since China’s accession. But another predicted result, a more balanced trading relationship between the two countries, has not occurred. In 1999, for example, Kenneth Lieberthal, then a special advisor to President Clinton and senior director for Asia affairs at the National Security Council, said:

*[The U.S. trade deficit with China] will not grow as much as it would have grown without this agreement [to allow China’s entry into the WTO] and over time clearly it will shrink with this agreement.*¹³⁰

In fact, just the opposite occurred. The U.S. trade deficit with China increased steadily through 2008 (the deficit shrank in 2009 as a consequence of the global economic crisis but resumed its growth in 2010). Since China’s entry into the WTO in 2001, the United States has run a cumulative deficit in goods with China of over \$1.76 trillion.¹³¹ Moreover, China’s share of the U.S. global deficit continued to grow, as table 1 demonstrates.

Table 1: U.S. Current Account Balance with China and the World (U.S. \$ billions)

Year	U.S. balance with world	U.S. balance with China	China’s share of U.S. global trade deficit
2000	–\$417	–\$88	21%
2001	–\$398	–\$89	22%
2002	–\$459	–\$110	24%
2003	–\$522	–\$132	25%
2004	–\$631	–\$172	27%
2005	–\$748	–\$219	29%
2006	–\$803	–\$261	33%

**Table 1: U.S. Current Account Balance with China and the World
(U.S. \$ billions)—Continued**

Year	U.S. balance with world	U.S. balance with China	China's share of U.S. global trade deficit
2007	-\$718	-\$295	41%
2008	-\$669	-\$308	46%
2009	-\$378	-\$264	70%

Source: Bureau of Economic Analysis, *U.S. International Transactions Accounts Data* (Washington, DC: Department of Commerce, September 14, 2010).

The Chinese leadership viewed WTO membership as a top national priority, underpinned by the belief that China's future economic prosperity and status as a global power depended on greater integration with world markets.¹³² On December 11, 2001, the day China formally entered the WTO, *People's Daily*, the Chinese Communist Party's official news outlet, noted China's goals in joining the WTO, including the pursuit of further economic reforms; the attraction of foreign investment, capital, and technology; and the expansion of export markets:

*We should continue to deepen reform of the foreign trade system, make major efforts to foster new growth points of export and promote the diversification of the mainstays of foreign trade management. . . . We should closely integrate the absorption of foreign capital with the upgrading of domestic industries, the coordination of development of regional economies, the reorganization and transformation of State-owned enterprises and the expansion of exports. . . . We should actively spur foreign capital to flow into high and new technological industries, and encourage transnational corporations to come to China to set up R&D [research and development] centers and regional headquarters.*¹³³

The last goal, in particular, has proved problematic for U.S. interests, as China started implementing additional policies that attract foreign high-tech businesses by using extensive subsidies, and then demanding technology transfer, while at the same time threatening to withdraw market access if they do not wish to hand over technological know-how.¹³⁴ The U.S. Trade Representative's (USTR) *2009 Report to Congress on China's WTO Compliance* notes a "growing concern" among U.S. businesses and industries that "the pace of economic reform in China appears to have slowed in key sectors, and there are growing indications that China's movement toward a market economy has stalled."¹³⁵ Though most American and other foreign businesses express optimism about China's potential for growth, AmCham-China's *2010 Business Climate Survey* reflects the growing concern among the American business community that China's regulations are increasingly discriminating against American companies.¹³⁶ AmCham-China also worries that many new industrial policies are protectionist in nature and that progress toward greater reliance on market-oriented mechanisms has slowed, allowing a return to reliance on administrative measures to manage the economy.¹³⁷

China's WTO Compliance: Priority Issues

While China has taken steps toward meeting its WTO commitments,¹³⁸ further liberalization has been thwarted in some cases by other Chinese policies, “including a number of industrial policies . . . that favor state-owned, state-related and other domestic entities over foreign firms.”¹³⁹

As described by Deputy United States Trade Representative Michael Punke during the WTO's third Trade Policy Review of China in May 2010:

In the first years after China's accession to the WTO, China made noteworthy progress in adopting economic reforms that facilitated its transition toward a market economy and increased the openness of its economy to trade and investment. However, beginning in 2006, progress toward further market liberalization began to slow.

By the time of China's [WTO] Trade Policy Review in 2008, the United States noted evidence of a possible trend toward a more restrictive trade regime, citing several Chinese measures signaling new restrictions on market access and foreign investment in China. At the root of many of these problems was China's continued pursuit of problematic industrial policies that relied on excessive government intervention in the market through an array of trade-distorting measures designed to promote and protect domestic industries. This government intervention appeared to be a reflection of China's historic yet unfinished transition from a centrally planned economy to a free-market economy governed by rule of law.

Since China's [WTO] Trade Policy Review in 2008, there is increasing evidence of such a restrictive trend. Examples from the past two years include: (1) the continued and incrementally more restrictive use of export quotas and export duties on a large number of raw material inputs; (2) the selective use of other border measures such as value-added tax rebates to encourage or discourage exports of particular products; (3) the setting and enforcement of unique Chinese national standards, such as an informal requirement that all new 3G mobile handsets be enabled with a unique Chinese national standard for wireless Internet access; (4) China's government procurement practices, including an array of new central, provincial and local government 'Buy China' policies; (5) a new Postal Law that excludes foreign suppliers from a major segment of the domestic express delivery market; (6) impediments to the foreign supply of value-added telecommunications services and an informal ban on new entrants in China's basic telecommunications sector; and (7) continuing significant restrictions on foreign investment in China, along with continuing consideration of 'national economic security' when evaluating foreign investment through mergers and acquisitions.¹⁴⁰

Detailed below are snapshots of China's WTO noncompliance and promotion of discriminatory industrial policies that were highlighted by witnesses at the Commission's June 9 hearing on China's role in the WTO.

Indigenous Innovation

China continues to employ industrial policies that, in the words of Deputy U.S. Trade Representative Demetrios Marantis, "limit market access [for foreign businesses] or otherwise skew [the U.S.-China] trading relationship."¹⁴¹ One such measure, the "indigenous innovation" government procurement policy, recently has provoked international opposition. In his testimony before the Commission, Terence P. Stewart, an international trade lawyer, called China's indigenous innovation policies "a clear example of China's attempts to promote industrial policies that favor Chinese industries while at the same time limiting market access for foreign-origin goods and service providers."¹⁴² Being excluded from China's government procurement is a big disadvantage for foreign companies: The Chinese government estimated that in 2009, the Chinese government procurement market surpassed \$100 billion, but this is a significant understatement of its true size (for example, the Chinese Ministry of Finance's limited definition of government procurement spending does not include most government infrastructure projects, and procurement by state-owned enterprises is not included, even when they perform government functions).¹⁴³

China and the WTO Agreement on Government Procurement

The controversy over China's "indigenous innovation" policies focused international attention on China's unfulfilled 2001 promises to join the WTO Agreement on Government Procurement. China made a commitment at the last WTO Government Procurement Agreement Committee meeting and at the May 24–25, 2010, Strategic and Economic Dialogue (S&ED) to submit a revised offer for acceding to the plurilateral Government Procurement Agreement. The previous Chinese Government Procurement Agreement accession offer, made in late 2007, was strongly criticized by trading partners, as it did not commit subcentral government agencies, exempted state-owned enterprises, contained high thresholds, and included a 15-year grace period during which China would not have to implement any Government Procurement Agreement obligations.¹⁴⁴

In mid-July 2010, China's long-awaited revised offer for acceding to the Government Procurement Agreement was delivered to the WTO. China claimed that the revised submission was a significant improvement over Beijing's initial offer, but there were still significant shortcomings.¹⁴⁵ For example, the new offer would not cover provincial or local government agencies or state-owned enterprises, which comprise a significant share of the Chinese government's procurement.¹⁴⁶ The dominance of the state-owned enterprises in the Chinese economy is one of the reasons

**China and the WTO Agreement on
Government Procurement—Continued**

the United States has not designated China as a market economy—a goal China has been pursuing for many years. The United States has a statutory test for determining whether an economy can be classified as a market economy.* The factors to be considered under U.S. law in granting market economy status include the extent to which the country's currency is convertible, the extent to which wage rates are freely determined by negotiations between labor and management, and the extent to which the government owns or controls the means and decisions of production.¹⁴⁷ However, under its WTO accession agreement, China will automatically attain market economy status by 2016, and the United States will lose the ability to treat China as a non-market economy when determining antidumping penalties, which can frequently result in higher fees.

In the new offer, the proposed final threshold for central government purchasing of construction services is still three times higher than most other Government Procurement Agreement members.¹⁴⁸ The offer also reserves the right for the Chinese government to “require the incorporation of domestic contents, offset procurement, or transfer of technology.”¹⁴⁹ The revised offer was not accepted by China's trading partners.¹⁵⁰

Membership in the WTO Agreement on Government Procurement is voluntary; a country can be a WTO member without ever acceding to the agreement. Until China signs the Government Procurement Agreement, it is not a WTO violation for China to discriminate in its government procurement nor for other WTO members to discriminate against Chinese goods and services in their government purchases.

In December 2007, China issued two measures aimed at limiting the government's procurement of foreign goods and services. The first, *Administrative Measures for Government Procurement and Ordering of Indigenous Innovative Products*, restricts government procurement of “indigenous innovative” products to “Chinese” products manufactured within China. The second, *Administrative Measures for Government Procurement of Imported Products*, severely restricts government procurement of imported foreign products and technologies.¹⁵¹ The central government and provincial governments have since followed up by creating catalogues of qualifying “indigenous innovation products.”

Subsequently, in November 2009, China issued the *Circular on Launching the 2009 National Indigenous Innovation Product Accreditation Work*, requiring companies to file applications by December 2009 for their products to be considered for accreditation as

* In the most basic sense, a market economy is an economic system in which decisions about the allocation of resources and production are made on the basis of prices generated by voluntary exchanges among producers, consumers, workers, and owners of factors of production. This is contrasted with a planned economy, in which crucial economic processes are determined to a large extent not by market forces but by an economic planning body that implements major economic goals.

“indigenous innovation products.”¹⁵² This circular indentified eligible products and the criteria for being accredited as a national indigenous innovation product. These include computer and application devices, communication products, modernized office equipment, software, “new energy and equipment,” and energy-efficient products.¹⁵³

Several provisions of the circular were problematic: For example, the circular provided that to qualify as an indigenous innovation product, the product’s intellectual property “must originally be registered in China.”¹⁵⁴ The same “first registration in China” requirement also applied to the product’s trademarks and brands. In addition, the circular required that a product must have highly advanced technology that equals or exceeds international standards.¹⁵⁵

Responding to the WTO’s *2010 Trade Policy Review of China*, the United States has criticized this measure as discriminatory, limiting market access for foreign companies and interfering with the exercise of intellectual property rights:

*At present, the industrial policies generating the most controversy are China’s so-called ‘indigenous innovation’ policies. Over time, it has become evident that many of these programs contain elements that could discriminate against foreign products, foreign investors, foreign technology and/or foreign intellectual property. Recent measures have generated intense concern among WTO Members and their business communities by more concretely demonstrating a policy direction that seems designed to limit market access for imports and foreign investors and pressure enterprises to localize research and development in China, as well as transfer technologies.*¹⁵⁶

Indeed, in a letter to senior Obama Administration officials, the heads of 19 U.S. business and industry associations warned that the new procurement rules issued by the Chinese government represent “an unprecedented use of domestic intellectual property as a market-access condition [that] makes it nearly impossible for the products of American companies to qualify unless they are prepared to establish Chinese brands and transfer their research and development of new products to China.”¹⁵⁷

China’s record of poor intellectual property rights protection, which has led to theft of foreign technologies and piracy of creative content, gained a new dimension in light of indigenous innovation policies. One of the primary goals of the indigenous innovation policy is to reduce China’s dependence on foreign technologies while at the same time fostering domestic companies to emerge as an innovative power in their own right.¹⁵⁸ Foreign government and technology enterprises worry that Beijing will “intervene in the market for [intellectual property] and help its own companies ‘re-innovate’ competing [intellectual property] as a substitute for foreign technologies, and potentially misappropriate U.S. and other foreign [intellectual property].”¹⁵⁹ A report by the U.S. Chamber of Commerce noted that many international technology companies called the indigenous innovation guidelines “a blueprint for technology theft on a scale the world has never seen before.”¹⁶⁰

China's indigenous innovation policies, including the use of government procurement preferences to promote innovative domestic goods, were strongly protested by the U.S., European, and other international business groups in the lead-up to the May 24–25, 2010, Strategic and Economic Dialogue. The United States pointed out that China had made commitments to “require that products produced in China by foreign invested enterprises are treated as domestic products and will issue rules in this regard.”¹⁶¹ That promise had first been made at the October 28–29, 2009, meeting of the Joint Commission on Commerce and Trade.

In April 2010, China revised its accreditation circular to address some of the concerns raised by the United States and others. In the revised circular, China relaxed the intellectual property, trademark, and brand “first registration in China” requirement and changed the highly advanced technology requirement to one calling for a product to be proven effective in conserving energy, reducing pollution, and/or raising energy efficiency, or “substantially” improving on an original product's structure, quality, material, craftsmanship, or performance.¹⁶² These changes, however, have not alleviated U.S. and European objections to this measure.

Consequently, the Obama Administration elevated the criticism of Chinese indigenous innovation standards to one of the two top issues on the economic track of the S&ED, alongside currency exchange rate issues.¹⁶³ According to the joint fact sheet issued at the conclusion of the May 24–25 S&ED, the United States and China agreed to “conduct intensive, expert and high-level discussions commencing as soon as possible this summer about innovation issues, under the auspices of the Sino-U.S. Joint Commission Meeting on Scientific and Technological Cooperation.”¹⁶⁴ However, following the May 24–25 S&ED, Under Secretary of Commerce for International Trade Francisco Sánchez said that “China did not agree to a U.S. request to suspend its indigenous innovation policy” made at the S&ED, although China “did agree to provide additional time for U.S. industry and government comments on how it could achieve its goal of promoting innovation in China without discriminating against foreign companies.”¹⁶⁵

Export Restrictions

In June 2009, the United States filed a WTO case against China to address a variety of export restrictions that China imposes on nine raw materials. While no decision has been issued in this case, the WTO's *2010 Trade Policy Review* of China criticized China's use of export restraints in general and refuted China's stated rationales for using them:

[W]hether intended or not, export restraints for whatever reason tend to reduce export volumes of the targeted products and divert supplies to the domestic market, leading to a downward pressure on the domestic prices of these products. The resulting gap between domestic prices and world prices constitutes implicit assistance to domestic downstream processors of the targeted products and thus pro-

vides them a competitive advantage. Insofar as China is a major supplier of such a product, export restraints may also shift the terms of trade in China's favor. Also, some export restrictions might be imposed to pre-empt imposition of import restrictions by governments in export markets.

More generally, export restraints may not be the best way to achieve some of the objectives/rationales mentioned above. In particular, restricting the export of some highly polluting or high-energy consuming products is not the most economically efficient way to protect the environment or reduce energy consumption. Nor are export restraints the best way to conserve natural resources.¹⁶⁶

China, however, has also tightened its control over the supply of rare earth elements, valuable minerals that are used prominently in the production of diverse high-technology goods, from flat panel screens to hybrid car batteries and special magnets used in wind turbines.* Rare earth minerals are also critical for many military technologies, including the magnets used in the guidance systems of U.S. military smart bombs like Joint Direct Attack Munitions, and superalloys (used to make parts for jet aircraft engines).

China accounts for over 95 percent of the world's production of rare earth minerals, and for the last three years it has been reducing the amount that can be exported.¹⁶⁷ After the Ministry of Industry and Information Technology issued in August 2009 a draft policy outlining the tightening of exports for rare earth minerals, Zhao Shuanglian, deputy chief of the Inner Mongolia autonomous region, spoke out to quell global concerns. According to Mr. Zhao, rare earth elements are "the most important resource for Inner Mongolia," which contains 75 percent of China's deposits, and by cutting exports and controlling production, the government wants to "attract users of rare earths to set up in Inner Mongolia" to develop manufacturing.¹⁶⁸ China also is taking steps to consolidate its rare earths industry, with the aim of creating a consortium of state-owned miners and processors in Inner Mongolia.¹⁶⁹

Despite the international outcry that followed the initial announcement of export restraints, China further cut the export quotas for rare earth minerals by 72 percent for the second half of 2010, with shipments capped at 7,976 metric tons, down from 28,417 tons for the same period last year.¹⁷⁰ Earlier this year, China put limits on rare earth production and stopped issuing new exploration licenses until June 30, 2011. It also launched a crack-down on illegal rare earth mining in June 2010 to stamp out unauthorized supplies.¹⁷¹ The central government is also planning to create a unified price for rare earth metals in five provinces, which will include establishing a unified transportation and sales system and consolidating production into three to five state-owned conglomerates in the long term.¹⁷²

*The rare earth elements group is comprised of 17 minerals—scandium, yttrium, and the 15 lanthanoids—and they play a crucial role in many advanced technological devices. For more information, see, for example, Gordon B. Haxel, James B. Hedrick, and Greta J. Orris, "Rare Earth Elements—Critical Resources for High Technology," U.S. Geological Survey Fact Sheet 087-02 (Reston, VA: 2002). <http://pubs.usgs.gov/fs/2002/fs087-02/fs087-02.pdf>.

“In the long run, steps will be taken to heighten the influence of domestic miners on the price of the minerals in the global market,” *China Daily* quoted an unnamed source as saying.¹⁷³ This scenario seems increasingly likely, as a leading producer of rare earth minerals has also been given permission to set up a strategic reserve in the northern region of Inner Mongolia.¹⁷⁴

China’s Ministry of Industry and Information Technology said it is limiting production in some mines and closing others completely, because some of the rare earths are extracted under dire environmental conditions, while others are mined illegally. Tighter limits on exports of rare earths place foreign manufacturers at a disadvantage, however, compared to the domestic producers, whose access will not be so restricted.¹⁷⁵

China’s Support of its Green Tech Sector

China’s export restrictions on rare earth elements and other minerals, which are used extensively in green technologies, significantly benefit Chinese manufacturers of alternative and renewable energy equipment. The Chinese green tech industry also benefits from numerous other central and local government policies—from heavily subsidized land and low interest loans to local content requirements, currency undervaluation, and government procurement rules favoring domestic companies. These government favors helped make China the global leader in manufacturing and exporting clean energy products, leaving foreign companies struggling to compete.

The kind of help China gives its green tech manufacturers, however, may violate WTO rules banning subsidies to exporters.¹⁷⁶ In September 2010, the United Steelworkers union filed a trade case under Section 301 of U.S. trade law alleging that dozens of practices utilized by the Chinese government to develop their green tech sector were established at the expense of U.S. competitors.¹⁷⁷ On October 15, 2010, U.S. Trade Representative Ron Kirk announced that the United States has initiated an investigation in response to the United Steelworkers’ petition.¹⁷⁸ The investigation may ultimately lead to a formal dispute settlement case under WTO auspices. (For an in-depth look at China’s subsidization of its green tech sector and further details on the Section 301 petition, see chap. 4, sec. 2, of this Report.)

Despite China’s protestations that rare earth minerals restrictions are not being used for political reasons, recent developments in exports of rare earths to Japan raise concerns for the global economy. Amid a dispute over Japan’s detention of the captain of a Chinese fishing boat that collided with Japanese coast guard boats in contested waters of the East China Sea in September 2010, reports emerged that shipments of rare earths from China to Japan were being intentionally held up at Chinese ports.¹⁷⁹ Although the Chinese Ministry of Commerce denied ordering an em-

bargo, among Japanese importers rumors continued to circulate about an informal ban.¹⁸⁰ Shippers in several Chinese cities have also reported that Chinese customs officials have increased spot inspections of goods bound for Japan and being imported from the country, which can add costly delays to shipments.¹⁸¹ It is unclear whether the broad slowdown by Chinese customs was responsible for the cessation of rare earths shipments or for how long the tightened inspection procedures will remain in place.

Financial Services and Electronic Payment Processing

Trade in services is a key component of the American economy. Services represent over 75 percent of the U.S. gross domestic product (GDP), and the United States continues to have a significant overall trade surplus in the services trade (\$132 billion in 2009).¹⁸² Prior to China's WTO accession, U.S. financial institutions hoped to conduct foreign and domestic currency business in China. Since its accession to the WTO, China has complied with some, but not all, of its commitments.¹⁸³

For example, Calman J. Cohen, president of the Emergency Committee for American Trade, testified at the Commission's hearing in June 2010 that China still restricts the activities of Chinese-foreign joint venture banks. China also limits the ability of foreign banks to operate electronic payment systems for single-brand, renminbi (RMB)-denominated credit and debit cards.¹⁸⁴ U.S. companies complained that China is violating trade rules by shutting them out of its \$723 billion payments-processing market.¹⁸⁵

Under current Chinese rules, wholly owned foreign financial companies cannot supply credit card and electronic payment services through their own networks to Chinese customers priced in local currency. Instead, foreign banks must form a joint venture with Chinese operators, "co-brand" their cards, and conduct payments through the Chinese monopoly payment network China UnionPay, which routs information from credit cards to banks for approval.¹⁸⁶

China made a commitment in its WTO Services Schedule to allow foreign financial institutions to provide "all payment and money-transmission services, including credit, charge and debit cards" independently from Chinese banks and in foreign and local currency by December 11, 2006. The United States has raised this issue with China repeatedly, but there has been no change.¹⁸⁷

Although the restrictions at issue affect all major U.S. credit and debit card companies, including Visa, MasterCard, and American Express, on September 14, 2010, MasterCard announced it had signed a memorandum of understanding with UnionPay aimed "at mutually beneficial business development."¹⁸⁸ MasterCard said the cooperation may lead to future deals that improve merchant acceptance for MasterCard customers traveling to China and for UnionPay cardholders who travel abroad, but no further details have been made public.¹⁸⁹ Meanwhile, Visa, MasterCard's larger rival, said it has been blocked from starting any new business in China for almost one year after a disagreement with China UnionPay.¹⁹⁰

On September 15, 2010, U.S. Trade Representative Ron Kirk announced that the United States has requested dispute settlement consultations—the first step to litigation—concerning China's discrimination against U.S. suppliers of electronic payment serv-

ices.¹⁹¹ In a separate request for consultations filed on the same day, the United States challenged China's imposition of antidumping and countervailing duties on imports of U.S. grain oriented flat-rolled electrical steel.¹⁹²

WTO Effectiveness in Addressing Many of China's Industrial Policies

As of this Report's publication, the United States has filed ten dispute settlement cases against China, and China has filed five cases against the United States (see tables 2 and 3). Of the ten cases in which China was the defendant, three are pending. Many witnesses testifying before the Commission's June 2010 hearing believed that despite many WTO cases brought by the United States to address China's trade-distorting practices, the WTO is ineffective in responding to the most contentious aspects of China's industrial policy.

Table 2: WTO Cases Brought by the United States Against China

No.	Title	Request for Consultations	Panel Report	Appellate Body Report	Compliance Status
DS309	Value-Added Tax (VAT) on Integrated Circuits (Semiconductors)	March 18, 2004	Mutually agreed solution October 6, 2004		China agreed to eliminate the VAT refunds to firms producing integrated circuits
DS340	Measures Affecting Imports of Automobile Parts	March 30, 2006	July 18, 2008	December 15, 2008	China repealed the challenged measures in September 2009
DS358	Certain Measures Granting Refunds, Reductions, or Exemptions from Taxes and Other Payments	February 2, 2007	Mutually agreed solution December 17, 2007		China agreed to eliminate challenged subsidies
DS362	Measures Affecting the Protection and Enforcement of Intellectual Property Rights	April 10, 2007	January 26, 2009; adopted March 20, 2009	N/A	China announced it has fully complied with the WTO ruling in March 2010
DS363	Measures Affecting Trading Rights and Distribution Services for Certain Publications and Audiovisual Entertainment Products	April 10, 2007	August 12, 2009	December 21, 2009	China agreed to implement the WTO ruling; the United States and China will negotiate a timeline for China to comply
DS373	Measures Affecting Financial Information Services and Foreign Financial Information Suppliers	March 3, 2008	Mutually agreed solution December 4, 2008		China issued new regulations for foreign financial news services and named a new, purportedly independent, regulator

Table 2: WTO Cases Brought by the United States Against China—Continued

No.	Title	Request for Consultations	Panel Report	Appellate Body Report	Compliance Status
DS387	Grants, Loans, and Other Incentives (Famous Brands)	December 19, 2008	Mutually agreed solution December 18, 2009		China confirmed it has taken steps to eliminate all of the export-contingent benefits at issue
DS394	Measures Related to the Exportation of Various Raw Materials	June 23, 2009	Panel established December 21, 2009; report pending		
n/a	Measures Imposing Countervailing and Antidumping Duties on Grain Oriented Flat-Rolled Electrical Steel ¹⁹³	September 15, 2010	Request for consultation filed; no panel established yet		
n/a	Measures Affecting U.S. Suppliers of Electronic Payment Services ¹⁹⁴	September 15, 2010	Request for consultation filed; no panel established yet		

Source: WTO and U.S. Trade Representative; compiled by Terence P. Stewart and USCC staff.¹⁹⁵

Table 3: WTO Cases Brought by China Against the United States

No.	Title	Request for Consultations	Panel Report	Appellate Body Report	Compliance Status
DS252	Definitive Safeguard Measures on Imports of Certain Steel Products	March 26, 2002	July 11, 2003	November 10, 2003	United States terminated all safeguard measures subject to the dispute in December 2003
DS368	Preliminary Anti-dumping and Countervailing Duty Determinations on Coated Free Sheet Paper from China	September 14, 2007	Negative U.S. International Trade Commission determination terminated the countervailing duty investigation, which rendered continuation of this case unnecessary		
DS379	Definitive Anti-dumping and Countervailing Duties on Certain Products from China	September 19, 2008	October 22, 2010		WTO panel upheld the right of the United States to impose both antidumping duties and countervailing duties; the panel also found in favor of the United States on the majority of other issues in the case ¹⁹⁶

Table 3: WTO Cases Brought by China Against the United States—Continued

No.	Title	Request for Consultations	Panel Report	Appellate Body Report	Compliance Status
DS392	Certain Measures Affecting Imports of Poultry from China	April 17, 2009	Panel established September 23, 2009; interim report leaked to the press, June 2010		WTO interim ruling found United States in violation of WTO principles
DS399	Measures Affecting Imports of Certain Passenger Vehicle and Light Truck Tires from China	September 14, 2009	Panel established March 12, 2010; report pending		

Source: WTO; compiled by USCC staff.

The United States has a record of winning in the cases it has initiated against Chinese practices that violate its WTO commitments, but some of the most problematic issues in the U.S.-China trade relationship do not appear to be solvable using the WTO process. As Alan W. Wolff, co-chair of international trade practice at the law firm of Dewey & LeBoeuf, told the Commission, “not all matters that are of trade concern to the United States are the subject of dispute settlement cases.”¹⁹⁷ Robert E. Lighthizer, a deputy U.S. trade representative during the Reagan Administration, concurred, saying that the “WTO dispute settlement process is not designed to address the type of systemic noncompliance we see in China.”¹⁹⁸

Furthermore, as Mr. Wolff argued in his testimony, there are several difficulties in assessing success in dispute settlements:

*To be sure, when a case is brought and runs through to conclusion in terms of a judgment or a settlement, and USTR reports China’s compliance, that is one measure of success. But there is only one sure way to judge whether a dispute is satisfactorily concluded, and that is the effect on sales of products or services to which the complained-of restriction applied. In the case of auto parts, where the U.S. won its case, it would be interesting to ask whether China’s restrictions may have served their purpose, with the favorable WTO result coming too late to reverse the damage to U.S. commercial interests. The same is true of local content or technology transfer requirements or applied to investments. The requirements may be lifted after they have had the desired effect. Even then, the case may have resolved only part of the problems faced. The United States has had some ‘wins’ in the area of IP [intellectual property] enforcement, but the Chinese market is still saturated with pirated software and DVDs.*¹⁹⁹

Another obstacle to defending U.S. interests at the WTO is represented by the cases that have not been brought because many U.S. industries fear retaliation from China for promoting a case brought by the Office of the U.S. Trade Representative.²⁰⁰ As a

consequence, WTO cases brought by the United States against China's barriers to trade have been few and, since they are industry specific, they have failed to address the larger aspects of China's industrial policies that U.S. companies find most trade distorting, such as systemic subsidies and currency undervaluation.

The Office of U.S. Trade Representative's *2009 Report to Congress on China's WTO Compliance* noted that China continues to limit market access for non-Chinese-origin goods and foreign services suppliers while offering substantial government resources to support Chinese industries and increase exports.²⁰¹ In fact, Gilbert Kaplan, president of the Committee to Support U.S. Trade Laws, argued in his testimony before the Commission that WTO challenges to China's trade-distorting measures "are a drop in the bucket compared to the vast arsenal of market intervention tools that the Chinese government has at its disposal—including ownership over most key raw materials, land, energy, and capital, and complete control over the exchange rate."²⁰²

The U.S. trade deficit with China has become so intractable, and China's violation of trade rules so systemic, that even such advocates of China's WTO membership as C. Fred Bergsten have argued that the United States should consider tariffs on China if other methods fail.²⁰³ Mr. Lighthizer testified that in the face of China's consistent violation of trade rules and principles, imposing a penalty on China, even though it may violate the WTO rules, "may be the only way to force change in the system, to prompt China to truly live up to the letter and the spirit of its WTO obligations, and to put in place a sustainable and mutually beneficial trade relationship."²⁰⁴

Currency Manipulation and Adjudication under the WTO

As noted elsewhere, the United States has tried to address the RMB's undervaluation through bilateral negotiations, but the results have been mixed (for a discussion of China's currency policy, see chap. 1, sec. 1, of this Report). Accordingly, there is a growing call from experts and policymakers for the United States to take its complaint against China's currency manipulation to a formal WTO dispute settlement panel.

Article XV of the General Agreement on Tariffs and Trade (GATT), entitled "Exchange Arrangements," says that when disputes between signatory countries involve questions about balance of payments, foreign exchange reserves, or exchange arrangements, GATT countries shall "consult fully with the International Monetary Fund [IMF]" and shall accept the IMF's determination as to matters of fact and as to whether a country's exchange arrangements are consistent with its obligations under the IMF Articles of Agreement.* GATT Article XV also says, in paragraph 4, that coun-

*The IMF's Article IV: The IMF Article IV, as revised in 1978, said that countries should seek, in their foreign exchange and monetary policies, to promote orderly economic growth and financial stability and should avoid manipulation of exchange rates or the international monetary system to prevent effective balance of payments adjustment or to gain unfair competitive advantage over other members. The IMF can exercise "firm surveillance," but it cannot compel a country to change its exchange rate. Nor can it order commercial foreign exchange dealers to change the prices at which they trade currencies. For more information, see Jonathan E. Sanford, "Currency Manipulation: The IMF and WTO" (Washington, DC: Congressional Research Service Report for Congress, January 26, 2010), pp. 1-2, http://assets.opencrs.org/rpts/RS22658_20100126.pdf.

tries “shall not, by exchange action, frustrate the provisions of this agreement nor, by trade action, the intent of the provisions” of the IMF Articles of Agreement.²⁰⁵

Traditionally, the term “exchange agreements” was seen as referring (as it did when the GATT was created in 1947) to “currency controls, exchange licenses, transaction taxes and other official actions that limit a potential purchaser’s ability to get the foreign exchange needed to purchase goods from abroad.”²⁰⁶ In recent years, however, the IMF has broadened the meaning of this term, using it in the context of “whether a currency will float in value or be pegged to another currency.”²⁰⁷ As a recent Congressional Research Service report to Congress explains:

There has never been a definitive ruling by the GATT or WTO on the meaning of Article XV, including how provisions of the GATT agreement might be frustrated by exchange action. Some might argue that currency undervaluation raises the price of imports in a way that unilaterally rescinds tariff concessions approved during multilateral trade talks.

*Accordingly, a case could be made that the WTO should use the broader meaning of the term ‘exchange arrangements’ and take currency valuation arrangements into account in its dispute settlement process.*²⁰⁸

Of course, should the United States bring a WTO case on currency, there is no guarantee of success. Moreover, as Mr. Lighthizer testified before the Commission, “[I]t is not clear that ‘winning’ a case at the WTO would actually have a significant impact on China’s currency policy. China would undoubtedly spend years resisting efforts to persuade it to comply with such a ruling—just as it already resists calls to comply with its other WTO obligations.”²⁰⁹

Terence P. Stewart testified that the United States would not need to wait for a formal determination from the IMF that China is manipulating its currency before bringing a WTO case. He reasoned that the United States has several “viable claims . . . to challenge China’s unfair currency practices through the WTO dispute settlement system,” including that the undervaluation of China’s currency “constitutes a prohibited export subsidy within the meaning of various GATT articles and WTO Agreements, . . . violates China’s obligations under the International Monetary Fund’s Articles of Agreement, and . . . nullifies and impairs benefits accruing to the United States [under the WTO agreements].”²¹⁰

Other experts testifying at the Commission’s June 9 hearing disagreed. According to Mr. Wolff, the current WTO provisions have not been seen as an effective counter to currency undervaluation.²¹¹ James Bacchus, former chairman of the Appellate Body of the WTO, concurred, saying, “Obviously, there is considerable concern in the United States, and elsewhere in the world, with how Chinese currency practices affect the terms of trade. To me, that is one issue that would be best resolved through negotiation, and not litigation.”²¹²

The possibility has also been raised of designating China’s undervalued currency as an export subsidy and bringing relief under

U.S. countervailing duty law. This route, too, is controversial. The WTO Agreement on Subsidies and Countervailing Measures (“SCM Agreement”) defines a countervailable subsidy as containing three elements: (1) There must be a financial contribution, (2) there must be a benefit, and (3) there must be specificity.* This exact definition of a countervailable subsidy is incorporated in U.S. Unfair Trade laws at § 771(5) and (5A) of the Tariff Act of 1930.²¹³

Those calling for labeling China’s currency policy a countervailable subsidy argue that all of the legal criteria necessary for the imposition of countervailing duties are met: The Chinese government, through its currency practices, makes a financial contribution that provides a benefit that is specific to exporters and certain other groups of Chinese manufacturers.²¹⁴

Those opposed to using countervailing subsidy law see the situation differently. According to the U.S.-China Business Council, whose members include U.S.-based corporations with facilities in China, since “an exchange rate applies to all companies in a country’s economy, the application of CVDs [countervailing duties] for this purpose would diverge with the specificity requirement under the WTO rules. Since currency policy does not involve the transfer of anything of tangible value from the government, use of CVDs in this manner would also be contrary to the financial-contribution requirement under WTO rules.” The U.S.-China Business Council also argues that currency policy cannot be considered a prohibited subsidy under WTO rules, because “its benefit is not contingent on exportation nor does it require use of domestic goods.”²¹⁵

The issue was recently brought before the U.S. Department of Commerce in two related countervailing duty petition cases targeting imports of aluminum extrusions and coated paper from China. Both petitions included allegations that undervaluation of the RMB constitutes a countervailable subsidy. On August 31, 2010, in tandem with a preliminary determination that Chinese exports of aluminum products were unfairly subsidized, the Department of Commerce announced that it rejected the “currency as subsidy” argument “because the allegations made by domestic producers do not meet the statutory standard for initiating an investigation under the requirement that benefits provided under China’s unified foreign exchange regime be specific to the enterprise or industries being investigated.”²¹⁶ In a memo to Deputy Assistant Secretary for Import Administration Ronald K. Lorentzen, the International Trade Administration found that:

China’s currency regime is broadly available across the Chinese economy to all firms that exchange foreign currency and thus does not single out any enterprise, industry or group thereof. . . . Given that all enterprises and individuals in China that convert allegedly overvalued foreign currencies into RMB are recipients of the alleged subsidy, . . .

*There are four types of “specificity” within the meaning of the SCM Agreement: (1) Enterprise specificity: A government targets a particular company or companies for subsidization; (2) Industry specificity: A government targets a particular sector or sectors for subsidization; (3) Regional specificity: A government targets producers in specified parts of its territory for subsidization; (4) Prohibited subsidies: A government targets export goods or goods using domestic inputs for subsidization. For more information, see WTO, *Subsidies and Countervailing Measures: Overview*, “Agreement on Subsidies and Countervailing Measures (“SCM Agreement”).” http://www.wto.org/english/tratop_e/scm_e/subs_e.htm#fntext1.

*Petitioners have not sufficiently supported their claim that the undervaluation of the RMB is specific to any enterprise, industry, or group thereof.*²¹⁷

China's currency undervaluation, and the possibility of addressing it through a WTO case, remains the subject of intense debate.

Implications for the United States

China's lack of compliance in several important areas continues to frustrate the effective application of WTO rules to all members and perpetuates trade imbalances. There are two overarching implications of this noncompliance for the United States. First, China promotes industrial policies that manipulate trade rules to benefit domestic firms to the detriment of American and other foreign competitors. Second, China protects many domestic industries through an increasingly restrictive investment regime and export restrictions. This severely impedes the ability of U.S. companies to export to the Chinese market and to compete effectively with Chinese companies.

The wide variety of subsidies and other government-supplied advantages enjoyed by Chinese companies lowers their production costs, enabling China's domestic producers to sell at artificially low rates and to discount exports. China's delay in joining the WTO Agreement on Government Procurement, as it previously committed to do, also places U.S. companies at a disadvantage. U.S. firms are largely excluded from Chinese government procurement contracts, which comprise a significant market, while Chinese companies enjoy the advantages of unimpeded market access in the United States.

U.S. support for China's accession to the WTO was premised not only on achieving economic benefits for the United States, a goal that has had mixed results, but also on achieving political and civil change in China. This goal, too, has not been realized. Although the Chinese people today on average are more prosperous and enjoy a few more personal freedoms, the hope that WTO membership and a move to a more market-oriented economy would force the government to foster political and economic reform remains unfulfilled. The authoritarian Chinese Communist Party remains fully in control of all sectors of economic and civil life. The Internet, once touted as a tool for breaking the totalitarian control of the party over the people, has instead been subverted by the state to promote its policies. (See chap. 5 of this Report for an in-depth look at China's use of the Internet). Similarly, the Chinese government's selective compliance with WTO rules perpetuates the party's rule and provides China's exporters with unfair advantages over China's trading partners, particularly the United States (see also chap. 1, sec. 1, of this Report).

Conclusions

- Since China's accession to the WTO in 2001, the annual U.S. current account deficit with China has grown from \$89 billion in 2001 to \$264 billion in 2009. Predictions of a more balanced trade relationship between the two countries as a result of Chi-

na's membership in the WTO have proven false. Since China's entry into the WTO in 2001, the United States has run a cumulative deficit in goods with China of over \$1.76 trillion.

- Predictions that China's WTO accession would lead to the transformation of China's authoritarian government and enhance U.S. national security have not been borne out.
- Though China's implementation of its WTO commitments has led to a reduction in tariffs, the elimination of some nontariff barriers, and improved market access for some U.S. companies, in other areas significant problems persist. These can be traced to China's pursuit of policies that rely on trade-distorting government intervention intended to promote China's domestic industries and protect them from international competition.
- China, the biggest producer of rare earth elements in the world, has introduced measures aimed at restricting exports to foreign markets, to the detriment of foreign producers of a variety of cutting-edge technologies, including green and clean technologies and weapons systems. Such export restrictions provide an unfair advantage to Chinese technology producers.
- China's progress toward market liberalization has slowed in some sectors and has been reversed in others, such as government procurement and financial services.
- The U.S. government has filed a variety of WTO cases against China's barriers to trade. These WTO cases, while important, frequently fail to deal with the underlying causes of the U.S.-China trade deficit. WTO dispute resolution may be a poor tool for addressing such issues as China's currency manipulation and the trade-distorting aspects of China's industrial policy.

RECOMMENDATIONS

The U.S.-China Trade and Economic Relationship's Current Status and Significant Changes During 2010

- The Commission recommends that Congress urge the administration to respond to China's currency undervaluation by
 - a. working with U.S. trading partners to bring to bear on China the enforcement provisions of all relevant international institutions; and
 - b. using the unilateral tools available to the U.S. government to encourage China to help correct global imbalances and to shift its economy to more consumption-driven growth.
- The Commission recommends that Congress examine the efficacy of the tools available to the U.S. government to address market access-limiting practices by China not covered by its WTO obligations, and, as necessary, develop new tools.
- The Commission recommends that Congress direct the U.S. Department of the Treasury to monitor steps taken by China to promote the international use of the RMB, with a focus on the implications of such steps for the position of the U.S. dollar as the world's reserve currency.

The Implications and Repercussions of China's Holdings of U.S. Debt

- The Commission recommends that Congress evaluate steps that might be necessary to ensure that China's currency manipulation, undervaluation, or misalignment does not adversely affect the competitiveness of U.S. producers, including whether it should initiate action under Section 301 of the Trade Act of 1974.
- The Commission recommends that Congress urge the Department of the Treasury to designate China as a currency manipulator in its semiannual report.
- The Commission recommends that Congress direct the Department of the Treasury to fully account for all sales of U.S. government debt to foreign governments and holdings of U.S. government debt by foreign governments.

Evaluating China's Past and Future Role in the World Trade Organization

- The Commission recommends that Congress urge the administration to encourage China to develop a national, provincial, and local procurement regime based on performance and value rather than on local content and the origin of intellectual property.

- The Commission recommends that Congress encourage USTR to step up enforcement of WTO rules and U.S. laws by requesting consultations at the WTO on China's noncompliance with its obligations under WTO articles of accession, including denial of national treatment, export restrictions, and illegal subsidies. If China's noncompliance is not adequately resolved through such consultations, Congress should encourage USTR to file a formal WTO complaint.

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through a permanent institution which provides the machinery for consultation and collaboration on international monetary problems; (ii) To facilitate the expansion and balanced growth of international trade, and to contribute thereby to the promotion and maintenance of high levels of employment and real income and to the development of the productive resources of all members as primary objectives of economic policy; (iii) To promote exchange stability, to maintain orderly exchange arrangements among members, and to avoid competitive exchange depreciation; (iv) To assist in the establishment of a multilateral system of payments in respect of current transactions between members and in the elimination of foreign exchange restrictions which hamper the growth of world trade; (v) To give confidence to members by making the general resources of the Fund temporarily available to them under adequate safeguards, thus providing them with opportunity to correct maladjustments in their balance of payments without resorting to measures destructive of national or international prosperity; and (vi) In accordance with the above, to shorten the duration and lessen the degree of disequilibrium in the international balances of payments of members. <http://www.imf.org/external/pubs/ft/aa/aa01.htm>.

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CHAPTER 2

CHINA'S ACTIVITIES DIRECTLY AFFECTING U.S. SECURITY INTERESTS

SECTION 1: CHINA'S GROWING AIR AND CONVENTIONAL MISSILE CAPABILITIES

Introduction

In 2010, the Commission continued to investigate an issue of growing concern to the United States: China's improving capabilities to challenge the U.S. military's freedom of access in East Asia. As Admiral Robert F. Willard, commander of the U.S. Pacific Command, described to Congress in March 2010:

China's rapid and comprehensive transformation of its armed forces is affecting regional military balances and holds implications beyond the Asia-Pacific region. Of particular concern is that elements of China's military modernization appear designed to challenge our freedom of action in the region.¹

For almost two decades, China has been modernizing its military from one with an outdated air force and limited conventional missile strike capability to one with modern aircraft and air defenses and a large, growing arsenal of conventional ballistic and land-attack cruise missiles. In its 2010 report to Congress, the Department of Defense wrote that China's Air Force "continues its conversion from a force for limited territorial defense to a more flexible and agile force able to operate off-shore in both offensive and defensive roles ..."² Expert witnesses testified to the Commission that by 2020, China's Air Force will have transformed from a poorly equipped and trained service into one of the foremost in the world.³ Similarly, China's conventional missile capabilities have greatly improved in recent years. Over the past two decades, China's missile forces have evolved from "operating and maintaining China's small nuclear deterrent to fielding a seemingly ever-expanding conventional ballistic and cruise missile inventory."⁴ Improved air and missile capabilities increasingly allow China's military to conduct combat operations along China's periphery, reaching regional U.S. allies such as Japan, and possibly endangering U.S. forces based in the region. China appears to be in the final stage of developing an antiship ballistic missile capable of targeting large ships at sea, such as U.S. aircraft carriers. Summarizing the threat from China that U.S. forces in Asia could face, Secretary of Defense Robert M. Gates told Congress in 2009 that China's military modernization

“could threaten America’s primary means of projecting power and helping allies in the Pacific: our bases, air and sea assets, and the networks that support them.”⁵

This section discusses the modernization of China’s air and missile forces and the implications for the United States. Although air assets are found throughout China’s military, this Report will solely focus on China’s Air Force.* In addition, when describing China’s missile forces, this Report will limit its discussion to China’s conventional ballistic and cruise missile capabilities and not discuss developments in China’s nuclear missile capabilities.

The People’s Liberation Army (PLA) Air Force

Overview

The main air service in the PLA is the People’s Liberation Army Air Force (PLA Air Force). The PLA Air Force is one of four major services and arms in the PLA† and is responsible for conducting offensive and defensive air operations in and around China. With over 1,600 combat capable aircraft,‡ it is the third-largest air force in the world (after the United States and Russia) and the largest in Asia.§ PLA Air Force unit types include aviation, surface-to-air missile, antiaircraft artillery, airborne, communications, radar, electronic countermeasure, chemical defense, and technical reconnaissance units.⁶

The PLA Air Force is in the midst of a large-scale modernization process and transformation. These efforts are part of Beijing’s broader attempt to field a military capable of fighting and winning a modern, technology-intensive war.⁷ As Michael Schiffer, deputy assistant secretary of Defense for Asian and Pacific Security, testified to the Commission in March 2010:

*The People’s Republic of China is pursuing a long-term, comprehensive transformation of its armed forces from a mass army designed for attrition warfare on its own territory to one capable of fighting and winning short-duration, high-intensity conflict along its periphery against high-tech adversaries.*⁸

* In addition to the PLA Air Force, military aircraft are also present within the Chinese navy and the ground forces. China’s naval air assets consist of approximately 800 aircraft, most of which are combat aircraft. Although all services in the PLA are outfitted with helicopters, the majority are located within the ground forces. Currently, the ground forces have approximately 400 helicopters. Air defense forces are also found in both the ground forces and the PLA Navy. The International Institute for Strategic Studies, *The Military Balance: 2010* (London: Routledge, 2010), pp. 400, 402.

† The PLA consists of three services: the ground forces (army), the navy, and the air force. In addition, the PLA has an independent, service-level arm responsible for tactical and strategic missiles, the Second Artillery (Strategic Rocket Forces). For information on developments in the Chinese Navy, see chapter 2, section 2, of the U.S.-Economic and Security Review Commission’s *2009 Report to Congress* (Washington, DC: U.S. Government Printing Office, 2009). http://www.uscc.gov/annual_report/2009/chapter2_section_2.pdf.

‡ The term “combat capable aircraft” is a broader term than “combat aircraft,” and also includes training and reconnaissance aircraft that are capable of conducting air-to-air or air-to-ground operations. Therefore, China has more combat capable aircraft than combat aircraft. See The International Institute for Strategic Studies, *The Military Balance: 2009* (London: Routledge, 2009), p. 11.

§ By way of comparison, the next five largest air forces in Asia (by rank order of combat capable aircraft) are India (632); North Korea (620); South Korea (490); Taiwan (477); and Pakistan (383). The International Institute for Strategic Studies, *The Military Balance: 2010* (London: Routledge, 2010), pp. 362, 369, 413, 415, and 429.

According to the 2008 version of China's authoritative defense white paper:

[T]he Air Force is working to accelerate its transition from territorial air defense to both offensive and defensive operations, and increase its capabilities for carrying out reconnaissance and early warning, air strikes, air and missile defense, and strategic projection, in an effort to build itself into a modernized strategic air force.⁹

In order to achieve this goal, the PLA Air Force has sought to improve its capabilities through materiel, institutional, and doctrinal reforms. Each of these categories will be discussed briefly in the following subsections.

Materiel Reforms

For at least the past 10 years, the PLA Air Force has been modernizing its aircraft, weapons, and equipment. As stated in China's 2008 defense white paper:

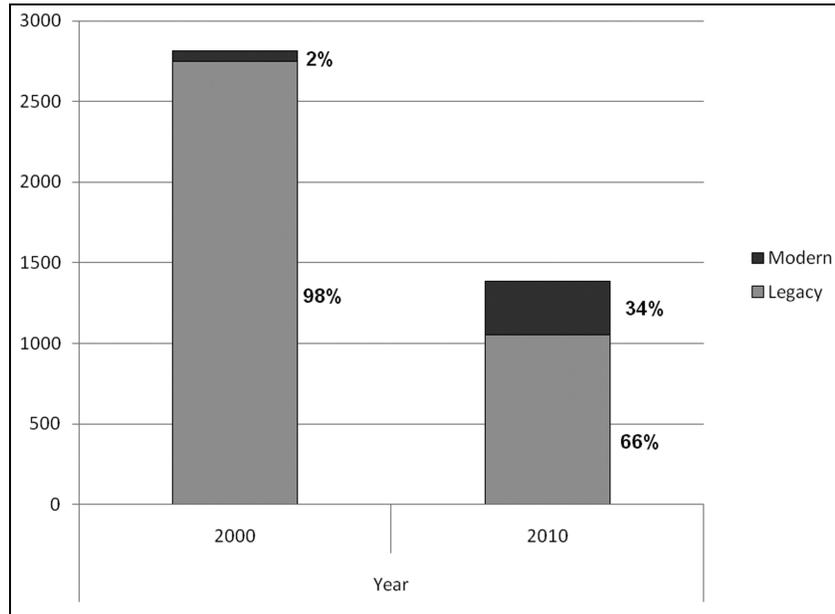
To satisfy the strategic requirements of conducting both offensive and defensive operations, the [PLA] Air Force attaches importance to developing new types of fighters, air and anti-missile defense weapons, and command automated systems. It has deployed some relatively advanced computerized equipment, and air-to-air and air-to-ground precision-guided munitions, upgraded the electronic information systems of the equipment on active service, and improved the basic networks for intelligence and early warning, command and control, and communications. It has in the main established a major battle weaponry and equipment system with [4th] generation aircraft and ground-to-air missiles as the mainstay, and modified [3rd] generation aircraft and ground-to-air missiles as the supplement.¹⁰

Specifically, the PLA Air Force has modernized and improved the following platforms, weapons, and equipment:

Fighters: Over the past decade, the PLA Air Force has simultaneously decreased the overall size of its fleet while increasing the number of modern fighters. Since 2000, the air force has shrunk its fighter fleet by half (see figure 1 below).¹¹ This decrease in size is primarily due to China phasing out its older, 1950s-era fighters, such as the J-6.¹²*

* Depending on the source, Chinese aircraft model designations are distinguished using either English transliterations of Chinese designators or North Atlantic Treaty Organization (NATO) designators (such as an "F" for fighter, or "B" for bomber). As a result, China's J-10 fighter is also labeled the F-10. In order to keep it simple—as well as to avoid confusion with U.S. fighters such as the F-16—this report will use English transliterations of Chinese designators throughout.

Figure 1: Comparison of Modern and Legacy PLA Air Force Fighters, 2000 vs. 2010*



Sources: U.S. Economic and Security Review Commission (USCC) staff-created chart extrapolated from The International Institute for Strategic Studies, *The Military Balance: 2010* (London: Routledge, 2010), p. 404; and The International Institute for Strategic Studies, *The Military Balance: 2000-2001* (London: Routledge, 2000), p. 197.

At the same time, the PLA Air Force has made significant progress in increasing the number of modern fighters. According to the U.S. Department of Defense, in 2000 only 2 percent of China's combat fighters were considered modern, 4th and improved 3rd generation fighters. Today, the percentage has climbed to almost 25 percent.¹³ As Admiral Willard testified to Congress, "China fields a growing number of sophisticated multi-role fighter aircraft, including the SU-27 and SU-30 purchased from Russia and indigenously produced 4th generation aircraft."¹⁴ Domestically produced modern fighters include the J-10, the J-11 (a licensed copy of the Russian Su-27), and the J-11B (an unlicensed copy of the SU-27).[†] In addition to new aircraft, the PLA Air Force has continued to upgrade its older airframes. Over the past decade, China has improved upon all models, but not all airframes, of its older aircraft.¹⁵

* Here modern fighter aircraft include 4th generation fighters, such as China's SU-27, SU-30, J-10, and J-11, as well as older-generation fighters that have been outfitted with modern components, such as advanced radar or avionics. Examples include recently improved variants of the J-7, the J-8, and the JH-7.

† For more on China's military aviation projects, as well as additional information on China's aviation manufacturing sector, see chapter 2, section 2, of this Report.

Fighter Aircraft Generations

Jet engine combat fighters are usually categorized by “generations.” International norms generally use five or six categories, loosely based upon the prevalent set of capabilities at the time of the aircraft’s development: *

1st generation: c. 1945 to 1955, this generation includes the original jet fighters powered by turbojet engines.

2nd generation: c. 1955 to 1960, these fighters generally had a higher top speed and were outfitted with radar and guided air-to-air missiles.

3rd generation: c. 1960 to 1970, in addition to having increased overall capabilities, these fighters also were the first to be capable of both air defense and ground attack missions.

4th generation: c. 1970 to 1990, these multirole fighters were equipped with increasingly sophisticated avionics and weapon systems. A key area of emphasis was maneuverability rather than speed.

4th+ (or 4.5) generation: c. 1990–2000, a concept that not everyone agrees exists, implies some combination of advanced capabilities and upgrades to a normal 4th generation airframe.

5th generation: These fighters have a combination of stealth, high altitude, maneuverability, advanced radar, high-capacity data links, “plug and play” avionics, and supercruise capabilities.¹⁶

China is also developing its first 5th generation fighter, the J-XX, and is expected to deploy it by 2018.¹⁷ Experts disagree on whether this plane will be as capable as the U.S. Air Force’s F-22, currently the world’s only deployed 5th generation fighter.¹⁸

Table 1: PLA Air Force Fighters

Model (including variants)	Type	Number
<i>Older Fighters</i>		
J-7	Fighter	552
J-8	Fighter	312
Q-5	Fighter-Ground Attack	120
JH-7A	Fighter-Ground Attack	72

* Chinese categories for fighter aircraft generations differ from accepted international norms. Normal conventions identify fighters based upon the decades of the fighter’s inception and its relevant capabilities. China, however, identifies its aircraft according to when they are inducted into the air force. Because of this difference, Chinese analysts regard China’s new fighter projects as “3rd generation” aircraft, while U.S. analysts use international norms, calling these same planes “4th generation.” In order to avoid confusion, this Report will follow the international naming norm. Office of Naval Intelligence, *China’s Navy 2007* (Suitland, MD: Department of the Navy), pp. 47–48.

Table 1: PLA Air Force Fighters—Continued

Model (including variants)	Type	Number
<i>4th Generation Fighters</i>		
SU-30MKK (Russian)	Fighter-Ground Attack	73
J-11/SU-27 (Russian)	Fighter	116
J-11B (SU-27 illegal copy)	Fighter-Ground Attack	18+
J-10	Fighter-Multirole	120+
<i>5th Generation Fighters</i>		
J-XX	Fighter	In development
	Total	1,383+

Source: The International Institute for Strategic Studies, *The Military Balance: 2010* (London: Routledge, 2010), p. 404.

Bombers: The PLA Air Force is also improving its current fleet of H-6 long-range bombers. Improvements include increasing the ranges of its current bombers and arming them with long-range cruise missiles, providing the PLA Air Force with a nascent stand-off strike capability.¹⁹ According to the testimony of Wayne A. Ulman, China issue manager at the U.S. National Air and Space Intelligence Center, when the latest variant of the bomber is operational, China will be able to strike targets as far away as Guam, to include the U.S. military bases on the island.²⁰

Table 2: PLA Air Force Bombers

Model (including variants)	Number
H-6	82

Source: The International Institute for Strategic Studies, *The Military Balance: 2010* (London: Routledge, 2010), p. 404.

Transports: China has made little progress in modernizing its air transport fleet since its last effort in the early 1990s when it bought 18 Russian-made IL-76s.²¹ China currently is designing a 200-ton transport aircraft, which, when completed, is to be comparable to the U.S. Air Force C-130.²²

Aerial refueling tankers: In an effort to expand its limited air refueling capabilities, China was reportedly in negotiations to purchase eight Russian IL-78 aerial refueling tankers, a deal that has since been cancelled.²³ Currently China has only a small fleet of 10 indigenous H-6U tankers acquired in the mid-1990s, which provide limited power projection capabilities at best.²⁴

Table 3: PLA Air Force Transports and Aerial Refueling Tankers

Model	Number	Notes
<i>Large Military Transports</i>		
IL-76 (Russian)	18	30 more ordered
Y-9	N/A	In development
<i>Refueling Tankers</i>		
H-6U	10	Refuels the J-8 and J-10 only

Source: The International Institute for Strategic Studies, *The Military Balance: 2010* (London: Routledge, 2010), p. 404.

Airborne early warning aircraft: The PLA Air Force has made acquisition of an aerial early warning capability a key focus over the past decade. Lacking airborne early warning aircraft in 2000, the PLA Air Force now deploys seven of them, split among two models: the KJ-2000 and the KJ-200. China has also created a new air intelligence radar network, which, when coupled with the new aerial early warning aircraft, greatly improves China's airborne surveillance capabilities.²⁵ Despite improvements, however, China's airborne early warning aircraft are insufficient in numbers for the size of China's territory.²⁶

Table 4: PLA Air Force Airborne Early Warning Aircraft

Model	Number
KJ-2000	4
KJ-200	3

Source: The International Institute for Strategic Studies, *The Military Balance: 2010* (London: Routledge, 2010), p. 404.

Unmanned aerial vehicles: * The PLA Air Force has deployed several types of unmanned aerial vehicles for both reconnaissance and combat purposes.²⁷ In addition, China is developing a variety of medium- and high-altitude long-endurance unmanned vehicles,²⁸ which when deployed, will expand the PLA Air Force's "options for long-range reconnaissance and strike."²⁹

Airborne weaponry:

- *Air-to-air missiles:* Complementing its new aircraft are new, highly capable missiles used to engage other aircraft. Roger Cliff, senior political scientist at the RAND Corporation, testified to the Commission that in 2000, only the PLA Air Force's Russian-made SU-27s were capable of firing beyond-visual-range missiles, a necessity for modern air combat.[†] Today, many, but not all, of China's fighters can fire beyond visual range missiles.³⁰ Like China's fighter fleet, the PLA Air Force's

* Unmanned aerial vehicles are remotely piloted or self-piloting aircraft that can be outfitted with a wide variety of payloads, to include cameras, communication equipment, sensors, or weapons.

[†] By comparison, in 2000, all U.S. combat aircraft carried beyond visual range missiles. See U.S.-China Economic and Security Review Commission, *Hearing on China's Emergent Military Aerospace and Commercial Aviation Capabilities*, written testimony of Roger Cliff, May 20, 2010.

advanced air-to-air missiles are a diverse collection of Russian-purchased and indigenously developed missiles.³¹

- *Air-to-surface weaponry*: China’s Air Force is also strengthening its capability to strike ground and maritime targets from the air. According to the Department of Defense, “the PLA has a small number of tactical [air-to-surface] and precision-guided munitions, including all-weather, satellite- and laser-guided bombs, and is pursuing improved airborne antiship capabilities.” The PLA Air Force also is improving its ability to target enemy radars using antiradiation missiles.³²

Air defense systems: Strengthening China’s air defense capabilities is a priority for Beijing.³³ Since 2000, the PLA Air Force’s air defense forces have significantly improved, possibly more so than any other component of the air force.³⁴ Many of the improvements are directly due to purchases from Russia of advanced, long-range, surface-to-air missile systems. Currently roughly half of China’s modern surface-to-air missile systems are Russian. According to the Department of Defense, these modern air defense systems potentially have limited ballistic and cruise missile defense capabilities as well.³⁵ China has also begun to develop its own highly capable surface-to-air missile systems, such as the HQ-9 and the HQ-12. Complementing the purchase and development of these new systems are improvements in China’s national air defense network, which, since 2007, spans the entire country.³⁶ Together, these developments provide China with one of the world’s best ground-based air defense networks and, in the view of the then Deputy Under Secretary of the Air Force for International Affairs Bruce S. Lemkin, would “pose a difficult challenge for even the most modern air forces in the region.”³⁷

Table 5: China’s Modern Surface-to-Air Missile Launchers

Launch System	Numbers
<i>Russian-purchased</i>	
SA-10B (S-300 PMU)	32
SA-20 (S-300 PMU1)	64
SA-20 (S-300 PMU2)	32
<i>Indigenous</i>	
HQ-9	64
HQ-12	60

Source: Office of the Secretary of Defense, *Annual Report to Congress: Military Power of the People’s Republic of China, 2009* (Washington, DC: U.S. Department of Defense, 2009), p. 66.

Electronic warfare equipment and capabilities: In recent years, China has substantially improved its ability to wage electronic warfare.³⁸ According to the Department of Defense’s 2009 report to Congress, improvements to the PLA Air Force’s electronic warfare capabilities consist of efforts to harden China’s command, control, communication, computer, intelligence, surveillance, and reconnais-

sance (C4ISR) systems as well as the development of offensive measures to degrade the electronic warfare capabilities of others.³⁹

Role of Electronic Warfare in Modern Combat

In modern warfare, military forces are heavily dependent upon access to the electromagnetic spectrum for successful operations. Communications with friendly forces and detection, identification, and targeting of enemy forces (among other tasks) are all reliant upon the ability to operate unhindered in this spectrum. For this reason, control of the electromagnetic spectrum (the ability to operate freely in the electromagnetic spectrum while denying an adversary the same ability) is considered essential to carrying out a military operation at all levels of conflict. As the U.S. Air Force points out, “[U]nfettered access to selected portions of the electromagnetic spectrum is critical for weapon system effectiveness and protection of critical air assets.”⁴⁰

Although electronic warfare has various definitions, its most basic content is any military action that involves the use of the electromagnetic spectrum. Electronic warfare can be divided into three main components:

Electronic attack: the use of electronic countermeasures such as jamming, antiradiation missiles, computer network operations, counterspace operations, and directed energy weapons (such as lasers, radio frequency weapons, and particle beams) to attack personnel, facilities, or equipment that supports electromagnetic spectrum operations.

Electronic protection: also referred to as “electronic counter-countermeasures,” it includes actions taken to protect personnel, facilities, and equipment from any electronic warfare employment, as well as the use of frequency hopping (rapidly changing radio frequencies), landline and fiber optic communications, and radars that are more difficult to jam, such as active phased array radars.

Electronic support: real-time information support provided to on-the-ground commanders in order to improve their situational awareness. It can include radar warning receivers (which tell and prioritize for a pilot the missile and air defense threats), communication intelligence, and electronic intelligence.⁴¹

Institutional and Doctrinal Reforms

In order to better operate these new weapons and equipment, the PLA Air Force has also made efforts to institute training, personnel, organizational, and doctrinal reforms, each of which are discussed below.

Training Reforms: Over the past decade, the PLA Air Force has improved the quality of training for its pilots. Previously training lacked effectiveness since pilots averaged only a minimal number of flight hours per year and exercises were highly scripted with outcomes predetermined.⁴² Expert witnesses told the Commission

that they now consider China's pilots to be well trained and, in some areas, China's training standards are on a par with western training standards.⁴³ Admiral Willard recently testified to Congress that "the PLA Air Force [has] continued to focus on improving pilot and controller proficiencies in complex, multi-plane combat scenarios, including operations over water."⁴⁴ Other areas of emphasis include training with modern aircraft and equipment, training in complex electromagnetic environments,* joint service training, and an increased use of opposition forces.⁴⁵ Despite these improvements, however, deficiencies still remain. For example, the quality of pilot training in the PLA Air Force varies with the type of aircraft: transport, bomber, and advanced fighter pilots receive the most training opportunities, while the pilots of older aircraft, still the bulk of the air force, receive significantly less flight time.⁴⁶

Personnel Reforms: The PLA Air Force has sought in recent years to increase the quality of its personnel.⁴⁷ In order to improve its officer corps, the air force is seeking to expand the number of college-educated officers. Previously, PLA Air Force officers either graduated from military-run academies of questionable quality or were directly promoted from the enlisted force, without higher education.⁴⁸ Today, the PLA Air Force claims that 40 percent of its officers have a bachelor's degree, half of which were earned at more rigorous civilian universities.⁴⁹ The PLA Air Force is also trying to attract more college graduates to join the enlisted force, a trend that shows signs of slowly increasing.⁵⁰

In order to develop a professional career enlisted force, in 1999 the PLA Air Force (along with the rest of the PLA) established a professional noncommissioned officer corps. Creation of this group of midlevel and senior enlisted personnel is an attempt to retain institutional knowledge and experience among its enlisted force, something not possible when China depended primarily on conscripts for its enlisted force.⁵¹ According to Mr. Ulman, non-commissioned officers now constitute 60 percent of the air force's enlisted force.⁵²

Organizational Reforms: Over the past decade, the PLA has greatly restructured its air force into a more flexible, streamlined organization. Dr. Cliff described how, since 2000, the air force has reduced its personnel size by 100,000, nearly 25 percent of its force.⁵³ In order to achieve these cuts, the PLA Air Force:

abolished 50 . . . major general billets, downgraded four of its five air armies and six army-level bases two grades to division-level command posts, and merged administrative billets in division, brigade, and regiment headquarters. It also restructured several radar units, merged numerous administrative and functional officer billets in headquarters,

*The push for training in complex electromagnetic environments stems from the PLA's belief that "any future combat environment will be conducted in a cluttered electromagnetic environment containing emissions from commercial and military systems, in addition to significant amounts of electronic warfare jamming." Therefore, it is important for the PLA exercises to be conducted with some level of opposed electronic warfare and cyber operations. U.S.-China Economic and Security Review Commission, *Hearing on China's Emergent Military Aerospace and Commercial Aviation Capabilities*, written testimony of Wayne A. Ulman, May 20, 2010; and Eric C. Anderson and Jeffrey G. Engstrom, *Capabilities of the Chinese People's Liberation Army to Carry out Military Action in the Event of a Regional Military Conflict* (McLean, VA: Science Applications International Corporation, March 2009), pp. 22–23.

*and replaced many junior officer billets with NCOs [non-commissioned officers].*⁵⁴

Doctrinal Reforms: In 2004, the Central Military Commission, China's supreme military command, publicly announced a new strategy for the PLA Air Force, entitled "Integrated Air and Space Operations, Simultaneous Offensive and Defensive Operations."⁵⁵ The latter half of this strategy now directs the PLA Air Force to prepare for offensive operations along China's periphery, in addition to maintaining its traditional defensive missions.⁵⁶ Prior to this shift, the PLA Air Force was "mainly a territorial air defense force, responsible for the mission of defending China's air space, and cooperating with and supporting army and navy operations."⁵⁷ This limited air operations primarily to eliminating enemy forces *within* China's territory, because China "did not possess forces for external attacks."⁵⁸ Rebecca Grant, director of the Mitchell Institute of Airpower Studies, told the Commission that the shift to offensive operations entails extending the range of PLA air and missile attacks.⁵⁹

There is much less known, however, about the first half of the new strategy, "Integrated Air and Space Operations." China's biennial defense white papers have yet to mention this component of the PLA Air Force's strategy. Both Dr. Cliff and Mr. Ulman testified to the Commission that it appears "Integrated Air and Space Operations" may be an aspiration, since the air force currently lacks any space assets.⁶⁰ † However, PLA Air Force writings indicate a "desire for the air force to integrate the use of space into their air operations," said Ulman.⁶¹ It is possible that the air force's desire reflects an ongoing struggle between various PLA organizations over control of space assets.⁶²

China's Conventional Missile Forces

Although not an air force entity, China's conventionally armed missile forces have the capability to influence standard air operations. Within the PLA, strategic missiles fall primarily under the control of China's strategic rocket forces, the Second Artillery. According to China's 2008 defense white paper, the Second Artillery's mission is to conduct "medium- and long-range precision strikes against key strategic and operational targets of the enemy."⁶³ As such, the Second Artillery's arsenal includes nuclear strategic ballistic missiles, nuclear and conventional tactical ballistic missiles,

*Although the Central Military Commission publicly announced this mission in 2004, it is likely that it, or at least the "Simultaneous Offensive and Defensive Operations" component, was in effect as early as the late 1990s. For example, just prior to the 50th anniversary of the PLA Air Force in 1999, then Chinese leader Jiang Zemin called upon the air force to be a "simultaneous offensive and defensive air force." Xinhua, "*Zhongguo Junshi Dashiji (1990 Nian—1999 Nian)*" (A Record of Events of China's Military (1990–1999)), July 26, 2004. http://news.xinhuanet.com/ziliao/2004-07/26/content_1649800_1.htm. See also U.S.-China Economic and Security Review Commission, *Hearing on China's Emergent Military Aerospace and Commercial Aviation Capabilities*, written testimony of Roger Cliff, May 20, 2010.

†Although details on China's space program—especially its military components—are not openly available, China's military space assets appear to be primarily under the control of the General Armaments Department, one of four general departments responsible for administering the entire PLA. Dean Cheng and Peter Cugley, *The PRC [People's Republic of China] Space Program: An Open Source Examination* (Alexandria, VA: CNA, September 2008), p. X.

and land-attack cruise missiles. This part of the Annual Report will discuss China's conventional ballistic and cruise missiles.*

The Second Artillery is rapidly expanding the number and type of conventional missiles that it deploys, allowing the PLA to rely increasingly on these missiles as an important component of its offensive strike options.⁶⁴ According to the Department of Defense, "China has the most active land-based ballistic and cruise missile program in the world."⁶⁵ Commission-sponsored research noted that "[o]ver the last 20 years the [Second Artillery] mission has evolved from operating and maintaining China's small nuclear deterrent to fielding a seemingly ever-expanding conventional ballistic and cruise missile inventory."⁶⁶

Western observers posit at least four reasons why the PLA seeks to develop its conventional missile forces. First, used at the initial onslaught of a conflict, these missiles are an effective strike option against an enemy's critical assets in an effort to weaken the enemy's defenses and response capabilities. According to then-Deputy Under Secretary of the Air Force Lemkin, these missiles "provide China with a dual-pronged capability to strike almost any regional target, to include airfields, ports, ships, military bases, logistics nodes, command and control facilities, and industrial/economic centers."⁶⁷ Once the enemy is subsequently weakened, follow-on PLA military operations could then proceed with reduced costs. For example, Lt Col (retired, U.S. Air Force) Mark A. Stokes, executive director of the Project 2049 Institute, told the Commission that:

*[L]arge scale theater missile raids, combined with other enablers such as an electronic attack, directed against selected critical nodes within an opponent's command and control structure or air defense system can enable conventional air operations to be carried out at reduced risk and cost.*⁶⁸

Similarly, Commission-sponsored research described a scenario involving Taiwan where the PLA could use its "relatively cheap inventory of short-range ballistic missiles (SRBM), land attack cruise missiles, and anti-radiation missiles to strike critical nodes as a means of 'softening' Taiwan's defenses."⁶⁹

Second, ballistic and cruise missiles are difficult to defend against. Ballistic missiles, for example, fired from within Chinese territory would only take a matter of minutes to reach their target on China's periphery. This in turn would severely minimize the reaction time of a target. Furthermore, ballistic missiles are very difficult to intercept, even with formidable air and ballistic missile defenses in place.⁷⁰ Cruise missiles are also inherently difficult to de-

*A ballistic missile can be launched from fixed and mobile land-based launchers or from submarines. Once fired, a ballistic missile flies in an arc to its target, usually exiting and reentering the earth's atmosphere along its path to the target. Ballistic missiles are generally classified according to their range, divided into short range (<1,000 km), medium range (1,000 – 3,000 km), intermediate range (3,000 – 5,500 km), and intercontinental ballistic missiles (>5,500 km). A fifth category, sea-launched ballistic missiles, includes all ballistic missiles launched from a submarine, regardless of its range. Cruise missiles, in contrast, are more akin to an unmanned, armed aerial vehicle and are categorized according to mission: land-attack cruise missiles and anti-ship cruise missiles. Capable of being fired from an aircraft, ship, submarine, or ground-based launcher, a cruise missile takes a more direct path to its target than a ballistic missile. Both ballistic and cruise missiles can be equipped with conventional or nuclear payloads. National Air and Space Intelligence Center, *Ballistic and Cruise Missile Threat* (Dayton, OH: April 2009).

fend against, since they have excellent accuracy and can oftentimes evade radar detection.⁷¹

Third, ballistic missiles are also inherently coercive in nature.⁷² Because most of China’s neighbors lack adequate defenses against China’s ballistic missiles, China may enjoy coercive leverage against them.⁷³ Similarly, in 2009, the Department of Defense labeled these missiles “China’s primary instruments of coercion, not only of Taiwan but of other regional neighbors.”⁷⁴ This coercive nature allows China to deter its neighbors from taking certain actions without actually firing a shot.

Finally, developing China’s strategic missile forces may be an attempt to improve upon traditional air force capabilities and may even compensate for weaknesses in China’s Air Force. For example, according to Dr. Cliff:

*In the U.S. military, reduced warning time and assured penetration capability are provided by stealth aircraft. For a country that does not have stealth aircraft, however, conventional ballistic missiles are a logical way of achieving the same effects, at least against targets on its immediate periphery.*⁷⁵

Echoing Dr. Cliff’s statement, Lt Col Stokes told the Commission how China “has relied on theater missiles to compensate for shortcomings in its conventional air forces.”⁷⁶

Conventional Ballistic Missiles

Since at least 2000, China has been improving its conventional ballistic missile capabilities. For example, ten years ago, China had only one brigade of conventional short-range ballistic missiles (roughly 24–36 launchers). Today, the number has increased to seven.⁷⁷ In addition to increasing the number of missiles, China is also extending their range, improving their accuracy, and increasing their payload.⁷⁸ China’s conventional ballistic missiles can be divided into two types: short-range ballistic missiles and medium-range ballistic missiles.

Table 6: PLA Conventional Ballistic Missiles

Missile Name	Number of Missiles	Number of Launchers	Estimated Range
<i>Short-Range Ballistic Missiles (<1,000 km range)</i>			
DF-11	700–750	120–140	300 km
DF-15	350–400	90–110	600 km
<i>Medium-Range Ballistic Missiles (1,000 km to 3,000 km range)</i>			
DF-3	15–20	5–10	3,000+ km
DF-21C	85–95	75–85	1,750+ km
DF-21D	Under development		1,750+ km

Sources: USCC staff compilation, based upon the following sources: Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2010* (Washington, DC: U.S. Department of Defense, 2010), p. 66; and Global Security.org, “Weapons of Mass Destruction—China—Theater Missile Systems.” <http://www.globalsecurity.org/wmd/world/china/theater.htm>.

Short-Range Ballistic Missiles: China currently fields “the world’s largest and most lethal short range ballistic missile force in the

world.”⁷⁹ This force is made up of two different missiles, the DF-11 and the DF-15.⁸⁰ In its most recent report to Congress, the Department of Defense stated that China had currently deployed between 1,050 and 1,150 short-range ballistic missiles opposite Taiwan.⁸¹ All of these missiles are road mobile, increasing their ability to evade detection and thus improve their survivability in the event of a conflict.⁸²

Medium-Range Ballistic Missiles: The Second Artillery now also deploys a conventional medium-range ballistic missile based upon an older nuclear missile, the DF-21. The conventional missile, the DF-21C, has a range of over 1,750 kilometers (km), and, depending on where it is launched, is capable of hitting targets throughout Japan, most of Southeast Asia and India, and portions of Central Asia and eastern Russia.⁸³ In its 2010 report to Congress, the U.S. Department of Defense stated that China currently had between 85 and 95 DF-21C missiles and 75–85 launchers.⁸⁴ While China’s missile industry is expanding its medium-range ballistic missile infrastructure, it is doing so at a limited rate. Both the industry and the Second Artillery could produce significantly more if necessary.⁸⁵

Beijing is also developing a medium-range ballistic missile capable of engaging large, moving surface ships, such as U.S. aircraft carriers. Describing this missile, the DF-21D, in its *2009 Report to Congress*, the Commission stated:

*[T]his missile is intended to deny regional access to surface ships of the opposing side. When combined with appropriate surveillance and targeting sensor systems, this missile could have the potential to destroy or disable aircraft carriers and their associated battle groups while in transit.*⁸⁶

While not yet operational, the DF-21D antiship ballistic missile is already in the testing phase, as Admiral Willard testified to Congress in March 2010.⁸⁷ Lt Col Stokes testified to the Commission that the manufacturing facilities for the DF-21D were completed in 2009 and that at least one brigade is “earmarked for initial introduction” of the missile when completed.⁸⁸ According to his most recent research, the PLA may be preparing to deploy this missile in southeast China’s Guangdong Province.⁸⁹ If true, this would provide the PLA with the ability to strike surface ships in both a Taiwan- and a South China Sea-related contingency.

Land-Attack Cruise Missiles

China is also expanding its land-attack cruise missile capabilities. The PLA has two types of land-attack cruise missiles, both first deployed within the last ten years. The first, the Second Artillery’s DH-10, is China’s premier long-range cruise missile, with an estimated range of over 1,500 km.⁹⁰ In its 2010 report to Congress, the Department of Defense estimated that China had between 200 and 500 DH-10 missiles, roughly a 30 percent increase over the Department of Defense’s estimate in 2009.⁹¹ In addition, the PLA Air Force employs a new, air-launched, land-attack cruise missile, the YJ-63. This missile arms the air force’s H-6 bomber, giving the air force a nascent stand-off strike capability.⁹² The range of the

YJ-63 is unclear, although one source claimed that it could reach targets in excess of 200 km.⁹³

Table 7: PLA's Advanced Cruise Missiles

Missile	Type	Number of Missiles	Number of Launchers	Estimated Range
DH-10	Ground Launched	200-500	45-55	1,500+ km
YJ-63	Air Launched	unknown	unknown	200+ km?

Sources: Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China, 2010* (Washington, DC: U.S. Department of Defense, 2010), p. 66; Eric C. Anderson and Jeffrey G. Engstrom, *Capabilities of the Chinese People's Liberation Army to Carry out Military Action in the Event of a Regional Military Conflict* (McLean, VA: Science Applications International Corporation, March 2009), pp 48-49; and National Air and Space Intelligence Center, *Ballistic and Cruise Missile Threat* (Dayton, OH: April 2009), p. 29.

Implications for the United States

The main implication of China's improved air and conventional missile capabilities is a dramatic increase in the PLA's ability to inhibit U.S. military operations in the region. Frequently referred to as an "anti-access and area-denial strategy,"* it seeks to hinder or deny enemy forces the ability to operate effectively along China's periphery and deter third parties from intervening in a conflict between China and Taiwan. In its 2009 report to Congress, the Department of Defense noted that "[s]ince 2000, China has expanded its arsenal of anti-access and area-denial weapons, presenting and projecting increasingly credible, layered offensive combat power across its borders and into the Western Pacific."⁹⁴ An anti-access and area-denial strategy benefits China, because such a strategy would have a geographical advantage against the United States in the event of a conflict. Said Dr. Grant:

China will have what a 20th century strategist called strong lines of communication. In contrast, the [United States] must reach across the Pacific with the more difficult aim of holding access open through a credible ability to withstand Chinese attacks and to hit key targets on China's mainland.⁹⁵

Although several definitions of an anti-access strategy exist, at its basic level it implies two interrelated concepts. *Anti-access* refers to an attempt to prevent enemy forces from operating from bases in a region. Describing the growing threat of non-China-specific anti-access capabilities as far back as 1996, General Ronald R. Fogleman, then U.S. Air Force chief of staff, stated that:

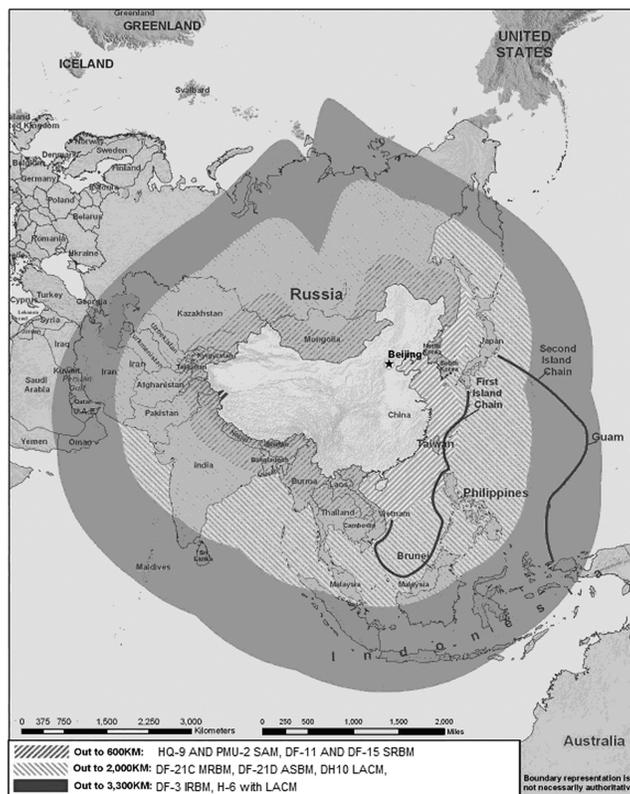
Saturation ballistic missile attacks against littoral forces, ports, airfields, storage facilities, and staging areas could make it extremely costly to project US forces into a disputed theater, much less carry out operations to defeat a well-armed aggressor. Simply the threat of such enemy missile attacks might deter US and coalition partners from responding to aggression in the first instance.⁹⁶

*It should be noted that the terms "anti-access" and "area-denial" are western constructs that attempt to capture the essence of China's military strategy and not a direct translation from Chinese military strategy.

Although not traditionally included, given the role that U.S. aircraft carriers play as floating air bases, attacks against aircraft carriers could also be construed as anti-access operations.

The second component, *area-denial*, seeks to prevent the freedom of action of U.S. forces in a certain region.⁹⁷ They can “include actions by an adversary in the air, on land, and on and under the sea to contest and prevent US joint operations within their defended battlespace.” As Jeff Hagen, senior engineer at the RAND Corporation, told the Commission, the concept of area-denial seeks to “capture the sense of portions of a battlespace being made too risky for U.S. operations.”⁹⁸

The PLA has strengthened its anti-access and area-denial capabilities over the years due to its improved air and missile assets, as well as its organizational and doctrinal reforms. China’s advances in its short- and medium-range ballistic missiles, ground and air-launched cruise missiles, and advanced aircraft with precision strike capabilities have greatly improved China’s ability to carry out anti-access operations.⁹⁹ Similarly, China’s improved integrated air defense systems; advanced fighter aircraft; air refueling capabilities; and airborne early warning systems all further China’s ability to conduct area-denial operations.¹⁰⁰ Furthermore, the PLA’s future deployment of an antiship ballistic missile will also strengthen both China’s anti-access and area-denial capabilities. Essential reforms of the air force’s organizational, training and personnel systems ensure that its newly-acquired platforms, weapons, and equipment are utilized to their maximum capacity.

Figure 2: China's Conventional Anti-Access Capabilities

Source: Adapted from Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China, 2010* (Washington, DC: U.S. Department of Defense, 2010), p. 32.

The combination of China's improving anti-access and area-denial capabilities poses a significant challenge to U.S. military forces operating in the region. According to Mr. Hagen, the crux of the problem is the PLA's increasing ability to threaten U.S. military bases in the region in the event of a crisis:

The root of the issue is the looming mismatch between U.S. basing options in the region and Chinese base attack capabilities. If aircraft carriers near Taiwan and airbases in Japan and South Korea can be attacked (or threatened to the extent that the U.S. is politically unable to utilize them) to the extent that sorties generated from them are significantly limited, operations from more distant locations such as Guam become the only remaining option.¹⁰¹

The PLA's current missile force alone may be sufficient to close down U.S. air bases in the region in the event of a conflict between China and the United States. According to Mr. Hagen's research, only 30–50 missiles would be necessary to "overload and kill air de-

fenses, cover all of the open parking areas with submunitions to destroy aircraft parked there, and crater runways such that aircraft cannot take off or land.” The addition of a similar amount of cruise missiles would complicate the air defense scenarios, destroy aircraft shelters, and damage fuel and maintenance facilities.¹⁰² As table 8 below shows, the PLA currently has the capability to attack with its conventional missile capabilities five of the six main U.S. air bases in East Asia.* In addition, improvements to the PLA Air Force’s bomber fleet soon could allow it to target Guam, where the sixth U.S. Air Force base is located.

Table 8: PLA Conventional Missile Capabilities Against U.S. Air Force Bases in East Asia

Base	Distance from China	PLA Nonnuclear Missile Capabilities †
Osan Air Base, South Korea	400 km	480 theater ballistic missiles; 350 ground launched cruise missiles.
Kunsan Air Base, South Korea	400 km	480 theater ballistic missiles; 350 ground launched cruise missiles.
Kadena Air Base, Japan	650 km	80 theater ballistic missiles; 350 ground launched cruise missiles.
Misawa Air Base, Japan	850 km (1,000 km without overflight rights from Russia)	80 theater ballistic missiles; 350 ground launched cruise missiles.
Yokota Air Base, Japan	1,100 km	80 theater ballistic missiles; 350 ground launched cruise missiles.
Andersen Air Force Base, Guam	3,000 km	Currently free from theater ballistic missile threats; could face threats from medium-range ballistic missiles, submarine-launched ballistic missiles, and air-launched cruise missiles.

Source: USCC staff, based upon testimony of Jeff Hagen. U.S.-China Economic and Security Review Commission, *Hearing on China’s Emergent Military Aerospace and Commercial Aviation Capabilities*, written testimony of Jeff Hagen, May 20, 2010.

Not only would U.S. bases be threatened in the event of a conflict with China, but so too would U.S. deployed aircraft. Dr. Grant described to the Commission a worst-case scenario that might confront U.S. fighters in the event of an air battle with the PLA Air Force. After air and missile attacks against U.S. bases and aircraft carrier strike groups, any U.S. “fighters that do launch from land or sea bases will immediately confront the integrated air defense and superior number of the [PLA Air Force].” U.S. fighters beyond the range of the PLA’s surface-to-air missiles “would encounter large numbers of [China’s] fighters on combat air patrol.” Dr. Grant also pointed out that, while not on a par with more advanced U.S. fighters, the sheer superiority in the number of PLA Air Force fighters could be enough to degrade U.S. air operations.¹⁰³

* It should be noted that whether the PLA would attack U.S. bases in the event of a crisis is not known. This Report solely looks at what would occur *if* the PLA did indeed attack.

† The number of missiles represented in this table is not cumulative, and does not take into consideration the effect of depletion. In other words, any missiles fired at one base in the event of a crisis would draw down a corresponding number of missiles threatening other U.S. bases.

Conclusions

- Over the past decade, as part of its overall military modernization, China has significantly modernized its air and missile capabilities. This modernization process is across the board, to include foreign purchases and indigenous production of aircraft, weapons, and equipment. In addition, institutional changes such as organizational, personnel, and training reforms continue to improve the PLA Air Force's capacity to conduct operations.
- Augmenting its modernization efforts, Beijing has expanded the PLA Air Force's focus in recent years from solely concentrating on territorial defense operations, to now include extraterritorial offensive operations.
- Simultaneous with the modernization of China's Air Force, Beijing has also strengthened the PLA's ability to conduct conventional missile strikes. Improvements include fielding increased numbers and types of more accurate conventional ballistic and land-attack cruise missiles.
- As China's air and missile modernization efforts progress, Beijing's ability to threaten U.S. forward deployed forces and bases in the region is improving. Any PLA missile strikes and air raids against U.S. bases, if successful, could force the temporary closure of regional U.S. bases and inhibit the U.S. military's ability to operate effectively in East Asia. In addition, the future deployment of an antiship ballistic missile could seriously interfere with the U.S. military's freedom of access to the region.

SECTION 2: DEVELOPMENTS IN CHINA'S COMMERCIAL AND MILITARY AVIATION INDUSTRY

Introduction

Through a combination of hearings and research this year, the Commission investigated the increasing capabilities of China's aviation industrial base. Once virtually dependent upon imports, China now is able to produce its own advanced military aircraft and is on the cusp of fielding the first of two domestically developed commercial aircraft. These advances reflect strong efforts on the part of the Chinese government to have an aviation industry that can produce aircraft capable of rivaling foreign products. As described in testimony presented to the Commission this year:

With strong political backing, ample funds, and privileged access to fast-growing domestic civilian and military markets, the country's aviation industrial barons are pursuing an ambitious strategy to build an internationally competitive, innovative and comprehensive aviation design and manufacturing base within the next 1–2 decades.¹⁰⁴

The Commission also noted that China's strategies for developing its aviation industrial base bear watching, including China's adherence to its World Trade Organization (WTO) commitments. Beijing's strategies include the government's heavy political and fiscal support for China's aviation manufacturing industry and the requirement for foreign aviation firms to provide technology and know-how offsets in return for market access, strategies practiced by other countries as well. Also of note is the close integration between its commercial and military aviation sectors, and the potential for commercial advances to fuel military developments. This section of the Commission's Report discusses these issues and what they might mean for U.S. national security.

Recent and Ongoing Aircraft Development Projects

Until recently, China produced only low-end commercial and military aircraft, relying on imports for more advanced aircraft. In the past decade, however China has made significant progress developing and producing its own aircraft. This subsection provides a brief overview of some of the major commercial and military aviation projects currently under way in China, as well as ongoing engine development projects.

Commercial aviation

The ARJ-21 regional jet: The ARJ-21 is China's 70- to 100-passenger regional jet program, intended to compete with the only

other current manufacturers of regional jets, Canada's Bombardier and Brazil's Embraer. The ARJ-21 had its first test flight in November 2008 and is currently in production, with an expected delivery date sometime in 2011.¹⁰⁵ There are currently over 200 orders for the ARJ-21, of which at least 70 percent come from Chinese state-owned airline companies.¹⁰⁶ Some aviation experts opine that the ARJ-21 will not be successful commercially, due to its outdated design; lack of product support, sales, and financing capabilities; late entry into a competitive market; and lack of international safety certifications.¹⁰⁷ However, during President Obama's November 2009 trip to China, he pledged to try to expedite Federal Aviation Administration certification of the ARJ-21, potentially eliminating a key barrier to future international sales.¹⁰⁸

“Buy Chinese”

In order to ensure that the ARJ-21 has a guaranteed market, Beijing in the past few years established two small, state-owned airline companies that are to fly only domestically produced commercial aircraft.¹⁰⁹ One company, “Joy Air,”* is a subsidiary of the Aviation Industry of China, while the other, “Chengdu Airlines,” is owned by the Commercial Aircraft Corporation of China Ltd. As the table below shows, both Joy Air and Chengdu Airlines have placed orders for the ARJ-21.¹¹⁰ In addition, according to Chengdu Airlines' website, the company also intends to purchase China's C919 large commercial aircraft when available.¹¹¹

Airline Name	Parent State-owned Enterprise	Current Fleet Size	ARJ-21 Orders
Joy Air	Aviation Industry Corporation of China	Six MA-60 prop planes	50
Chengdu Airlines	Commercial Aircraft Corporation of China Ltd.	Seven Airbus A320	30

The C919 large commercial aircraft: Building upon the knowledge gained from previous joint ventures with foreign aviation manufacturers as well as the experience acquired during the development of the ARJ-21, the C919 is China's premier commercial aviation project. The developer of the C919, the Commercial Aircraft Corporation of China Ltd, intends the 150-passenger aircraft to compete with the Boeing 737 and the Airbus A320 in both the domestic and global markets.¹¹² Development of a prototype of the aircraft began in August 2010, with an initial delivery scheduled for 2016.¹¹³ Aviation industry analysts are unsure of the C919's future success, given that China currently lacks the technology and know-how for completing such a difficult project.¹¹⁴

* Contrary to western reporting, only two such organizations exist, not three. The confusion stems from a mistranslation of Joy Air into English, which is sometimes also translated as “Happy Air.”

Major Players in China's Aviation Industry

Currently two large, state-owned organizations oversee almost all aviation research, development, and manufacturing in China: the Aviation Industry Corporation of China and the Commercial Aviation Corporation of China Ltd.

Established in 1993, the Aviation Industry Corporation of China is China's primary aviation design and manufacturing conglomerate. According to its website, the Aviation Industry Corporation of China is an "ultra-large state-owned enterprise and an investment institution" that is divided into 10 branches: defense; transport aircraft; aviation engines; helicopters; avionics; general aviation aircraft; aviation research and development; flight testing; trade and logistics; and asset management.¹¹⁵ Under these ten branches, the company controls over 200 subsidiary firms and 31 research institutes, employing over 400,000 people.¹¹⁶ Its products include not only military and commercial aircraft but also engines and airborne weapons.¹¹⁷ In recent years, the Aviation Industry Corporation of China has turned a substantial profit, earning \$1.4 billion in 2009 alone,¹¹⁸ and CNN Money listed the company as a Global Fortune 500 company in both 2009 and 2010.¹¹⁹

In May 2008, China established a second aviation conglomerate, the Commercial Aircraft Corporation of China Ltd, specifically to "design, develop, manufacture, and maintain" China's large commercial aircraft project, the C919.¹²⁰ Headquartered in Shanghai, the conglomerate has a number of state-owned stakeholders, such as the State Council's State-Owned Asset Supervision and Administration Commission (31.5 percent), the Shanghai municipal government-owned Shanghai Guosheng (Group) Company Ltd. (25 percent), and the Aviation Industry Corporation of China (about 25 percent).¹²¹ According to its website, the Commercial Aircraft Corporation of China Ltd. currently controls six subsidiary companies and organizations: the AVIC I Commercial Aircraft Corporation Ltd., the Shanghai Aircraft Design and Research Institute, the Shanghai Aviation Manufacturing Company Ltd., the Shanghai Aircraft Customer Service Company Ltd., the Industry Corporation Limited, and the Shanghai Aviation Industrial (Group) Co. Ltd.¹²²

Military aviation

The J-10 fighter: After roughly 20 years of development, China's first 4th generation fighter,* the J-10, finally entered service around 2004.¹²³ Developed by the Aviation Industry Corporation of China, the J-10 is a multirole, all-weather combat fighter capable of both air-to-air and air-to-ground missions.¹²⁴ Although the J-10 fighter design heavily incorporates input from a variety of foreign sources, most foreign observers consider it a true "Chinese" fighter

* Generally speaking, a 4th generation fighter is classified as a fighter that is equipped with increasingly sophisticated avionics and weapon systems and emphasizes maneuverability rather than speed. For more details on fighter generations, see chapter 2, section 1, of this Report.

due to the “unique synthesis of these various [foreign] elements.”¹²⁵ Some western analysts posit that China is also developing an improved version of the J-10, called the J-10B.¹²⁶

The J-11B fighter: In the mid-1990s, China purchased the rights to assemble 200 of Russia’s 4th generation fighters, the SU-27 (under the name the J-11). However, in 2006 Russia cancelled the agreement at 95 aircraft when it alleged that the Aviation Industry Corporation of China violated the terms of the license and copied the SU-27 to create its own variant, the J-11B.¹²⁷ China began incorporating the J-11B into the PLA Air Force in 2007. Ironically, further production of the J-11B may be dependent upon Russia, since China is having difficulties fielding an indigenous engine for the aircraft (see below for more on China’s engine projects).¹²⁸

The J-XX fighter: Little is known in unclassified sources about China’s 5th generation fighter program, the J-XX. This fighter is still in the early stages of development and, according to the testimony of Wayne A. Ulman, China issue manager for the U.S. National Air and Space Intelligence Center, it will not be operational until at least 2018.¹²⁹ Experts disagree on the actual capabilities of the J-XX, with some maintaining that it will be about as capable as the U.S. F-22 (currently the only 5th generation fighter in service in the world), and others holding that it will fall short of such advanced capabilities due to likely problems developing an engine and other necessary advanced technologies, such as composite materials.*¹³⁰

FC-1 fighter: Unique among China’s fighter programs, the FC-1 is a 4th generation fighter coproduced with Pakistan.¹³¹ Intended for export only, the FC-1 is less capable than China’s J-10 or J-11B aircraft but costs significantly less. Pakistan is currently the only nation that fields the FC-1 fighter, although other nations, such as Egypt, have inquired about purchasing the aircraft.¹³² While the FC-1 is powered by a Russian engine, recent tension between Russia and China over the possibility of the FC-1 competing with Russia’s fighter exports may preclude future engine sales to China for this aircraft.¹³³

Engine projects

Despite progress in other areas of aviation, China’s aviation engine sector remains an “Achilles’ heel” in China’s aviation manufacturing industry.¹³⁴ A major obstacle is China’s inability to successfully develop and manufacture an advanced turbofan engine.† More efficient and more powerful than turbojet engines, turbofan engines are a necessary component of any modern commercial or military

* Composite materials are man-made materials formed when two or more materials are combined into a third material. The third material has unique properties, which are the result of the component materials not blending together, but rather retaining their individual properties. Composite materials are increasingly used in aviation manufacturing since they are light, strong and corrosion-resistant.

† China is not alone in experiencing difficulties producing a turbofan engine. Currently, only a few nations have mastered the techniques necessary to manufacture a turbofan engine. Besides the United States, other countries that can independently manufacture turbofan engines include France, Russia, Ukraine, and the United Kingdom.

jet.* Without the ability to successfully produce a turbofan engine, China will remain dependent on imported engines. Presently, China is attempting to establish its independence from foreign engine suppliers by developing its own turbofan engines, such as the WS-10A and the SF-A turbofan engines, discussed below.

WS-10A military turbofan engine: The WS-10A is China's first modern fighter turbofan engine and was intended to power both of China's 4th generation fighters, the J-10 and the J-11. Although initiated in the 1980s, the WS-10A turbofan engine continues to experience significant problems, such as insufficient engine thrust, weak blades, and oil leakage.¹³⁵ Because of these problems, China has had to continue to import Russian-made engines for the J-10 and the J-11B fighters.¹³⁶

SF-A commercial turbofan engine: The SF-A commercial turbofan engine is currently little more than a model and will not be operational until at least 2016. The Aviation Industry Corporation of China hopes to use this engine for China's indigenous large commercial aircraft, the C919.¹³⁷ However, the Commercial Aircraft Corporation of China Ltd. has already contracted for C919 engines with CFM International, a joint venture between GE [General Electric] and France's Snecma (Safran Group), so it is unclear if the SF-A engine, when and if developed, will replace the CFM International engine.¹³⁸

Factors Assisting the Development of China's Aviation Industrial Base

In order to improve China's aviation industrial base and successfully conclude the above-mentioned aircraft and turbofan engine projects, Beijing has implemented an industrial strategy for its aviation industry. During this year's hearing cycle, the Commission heard about three factors in particular that help to promote China's aviation manufacturing industry. First, China's aviation industry enjoys strong government support. Second, the industry benefits from an offset policy that requires technology and know-how transfers from more-established foreign aviation manufacturing firms in return for market access in China. Third, the close integration between the commercial and military sectors of China's aviation industry allows Beijing to bolster its military aviation manufacturing capabilities by exploiting advances in the commercial aviation sector. Each factor will be discussed in turn.

Government-directed and -led development

The development of China's aviation industrial base would not be possible without the strong support it receives from the Chinese government. Beijing considers China's commercial aircraft industry a strategic industry and has made its development a national priority.¹³⁹ As China's Premier Wen Jiabao stated in regard to China's C919 large commercial aircraft project:

*A turbofan engine is the most modern variation of the basic gas turbine engine. In the turbofan engine, the core engine is surrounded by a fan in the front and an additional turbine at the rear. This sort of construction allows a turbofan engine to provide significantly more thrust per fuel amount than a normal gas turbine engine. National Aeronautics and Space Administration, "Turbofan Engines" (Washington, DC: September 13, 2010). <http://www.grc.nasa.gov/WWW/K-12/airplane/aturbf.html>.

*[The large commercial aircraft] is not only necessary for [China's] aviation industry, but also necessary for building an innovative country. The research and development of this aircraft will promote the development of science and technology in a number of important areas and will enable the entire passenger aircraft manufacturing industry to advance towards a higher level . . . The research and development of the large aircraft is a policy decision of great strategic significance made by the Party's Central Committee and the State Council in the new century.*¹⁴⁰

In recent years, several national-level programs have emphasized the development of China's aviation industrial base. The most important programs are China's Five Year Plans, through which the Chinese Communist Party maps strategies for national development in various areas over the next five years. In addition, China has also released other longer-term plans promoting its aviation industrial base.

- *10th Five Year Plan* (2001–2005)—one of the most important policies for China's aviation manufacturing industry, this Five Year Plan first emphasized the development of China's aerospace and aviation industries and specifically listed commercial aircraft manufacturing as a new emerging industry that requires Beijing's support.¹⁴¹
- *11th Five Year Plan* (2006–2010)—building upon the baseline provided in the 10th Five Year Plan, this plan specifically called for developing large commercial aircraft, helicopter, and general aviation aircraft programs. This plan also stressed developing China's aviation manufacturing knowledge and skill base.¹⁴²
- *12th Five Year Plan* (2011–2015)—still being drafted, this new plan likely will provide further information on developing China's aviation industrial base. According to the testimony of Tai Ming Cheung, associate research scientist at the University of California, San Diego, China's 12th Five Year Plan possibly will prioritize China's 5th generation fighter program, the J-XX.¹⁴³
- *National Medium- and Long-term National Science and Technology Development Program* (2006–2020)—this State Council plan specified the development of large commercial aircraft as one of 16 key industry areas on which China will focus over the next 15 years.¹⁴⁴
- *Catalogue Guiding Indigenous Innovations in Major Technology Equipment*—this December 2009 document encouraged the domestic development of 18 types of major technological equipment, to include commercial aircraft.¹⁴⁵

China's "Large-Scale Aircraft Leading Small Group"

Demonstrating Beijing's strong commitment to develop a large commercial aircraft, in 2006 China's State Council established a "Large-Scale Aircraft Leading Small Group" to oversee the development of China's large commercial aircraft project.¹⁴⁶ In the Chinese government, leading small groups are national-level ad hoc policy and coordination working groups, the membership of which consists of Chinese political elites.¹⁴⁷ The creation of such groups of high-level officials allows the Chinese government to focus efforts and resources from various disconnected ministries and departments on issues or projects that the central government feels are important. At the time of its creation, Zeng Peiyan, then vice premier and Politburo member, was the head of the Large-Scale Aircraft Leading Small Group, while Zhang Ping, then deputy secretary general of the State Council, served as deputy head. Other members included Ma Kai, then director of the National Development and Reform Commission; and Lieutenant General Li Andong, then deputy director of the General Armaments Department and alternate member of the 16th Chinese Communist Party Central Committee.¹⁴⁸ Further research failed to determine whether this leading small group is still in existence.

In order to achieve these macrolevel goals, China has implemented a number of policies:

- *Reorganization of the aviation industry*—In 2008 Beijing implemented two major organizational changes to its aviation industrial base. First, in May 2008, China established a new aviation conglomerate, the Commercial Aircraft Corporation of China Ltd., with the specific goal of developing China's large commercial aircraft project, the C919.¹⁴⁹ In November 2008, Beijing also combined two existing state-owned aviation conglomerates, the Aviation Industry Corporation of China I and the Aviation Industry Corporation of China II, into one entity.* According to Commission-sponsored research, this new organization, the similarly named Aviation Industry Corporation of China, was created to consolidate resources to better compete with western aerospace firms, such as Boeing and Airbus, among others.¹⁵⁰
- *Preferential trade policies*—Beijing provides several incentives to domestic firms seeking to import or export aviation-related goods, such as an import duty exemption and value-added tax rebates.¹⁵¹

* In 1999, Beijing split the state-owned Aviation Industry Corporation of China into two smaller state-owned groups, the Aviation Industry Corporation of China I and the Aviation Industry Corporation of China II. The split was justified at the time as an attempt to foster competition in China's aviation industry. However, according to most outside accounts, the breakup was only on paper, and little competition was actually achieved in the industry. U.S.-China Economic and Security Review Commission, *Hearing on China's Emergent Military Aerospace and Commercial Aviation Capabilities*, written testimony of Tai Ming Cheung, May 20, 2010; and Evan S. Medeiros et al., *A New Direction for China's Defense Industry* (Alexandria, VA: The RAND Corporation, 2005), pp. 174–75.

- *Creation of aviation industrial parks*—The Chinese government has established industrial parks in an effort to nurture domestic industries by “promoting geographic proximity to advanced foreign multinational company production facilities in specially constructed industrial and science parks.”¹⁵²* In recent years, Beijing has established at least eight aviation industrial parks throughout China.† In addition, China has set up an industrial hub in Beijing to coordinate the manufacturing and foreign sales of military aircraft.¹⁵³

Technology and know-how transfer through offsets ‡

While China has no publicly stated policy requiring offsets in international aviation deals, China’s commercial aviation industrial base continues to benefit from them. As the Commission previously pointed out in 2005, often in aviation deals involving China, “Chinese firms have used their leverage to extract offsets—agreements to transfer some of the aircraft production along with related expertise and technology—as part of the deals.”¹⁵⁴ Mary H. Saunders, deputy assistant secretary for manufacturing at the U.S. International Trade Administration, reaffirmed that this problem still exists, stating that “while China does not have an official offset policy . . . a company’s ‘commitment’ to building a relationship with China is a factor in purchasing decisions.”¹⁵⁵ As an example, in 2008, the deputy general manager of the Commercial Aircraft Corporation of China Ltd. openly alluded to the importance of offsets while discussing the bidding process for components on China’s C919. “We will choose international suppliers through bidding. But priority will go to foreign suppliers that design and manufacture products with domestic companies in China,” he said.¹⁵⁶

One way Chinese aviation firms acquire technology and know-how from foreign firms is through the establishment of joint ventures in China. According to Deputy Assistant Secretary Saunders:

*China has increasingly required that joint ventures be established as a condition for awarding manufacturing contracts. These joint ventures typically involve some element of technology transfer by the U.S. partner. The intention seems to be for China to develop domestic capabilities in subsystems in addition to airframes.*¹⁵⁷

Mr. Andersen described to the Commission one example where the European aerospace company, Airbus, established a joint venture in Tianjin, China, to assemble its A320 large commercial aircraft:

In April 2005, China approached Airbus seeking an Airbus final assembly line to be located somewhere in China. In

* Both Beijing and local governments support the growth of these parks by providing incentives to foreign firms, such as cheap land, plentiful labor, and tax breaks. The more advanced industrial parks in China also include local suppliers and Chinese start-up companies that provide components to or buy products from the foreign firms. Many of these parks also have links to local universities and research institutes for research and development support. Susan M. Walcott, “Chinese Industrial and Science Parks: Bridging the Gap,” *The Professional Geographer* 54: 3 (2002): 349–350.

† These hubs are currently located in the Chinese cities of Anshun, Chengdu, Harbin, Shanghai, Shenyang, Tianjin, Xian, and Zhuhai.

‡ For the purpose of this Report, offsets refer to a demand for a transfer of a technology, know-how, or production capability in return for some type of market access.

December of that year, China placed an order for 150 Airbus A320s worth almost \$10 billion. Though an agreement was not signed, construction on a final assembly line began in May 2007. Some analysts for the aircraft sector interpreted the announcement as a quid pro quo. An Airbus spokesman confirmed this and “acknowledged that Airbus’ main reason for the plant is to gain greater access to the Chinese market.”¹⁵⁸

Civil-military integration in China’s aviation industry

For at least a decade, China’s military aviation industry has benefitted from advances made in China’s commercial aviation sector. According to Deputy Assistant Secretary Saunders, “China intends to develop new capabilities through its commercial [aviation] programs, some of which could then be used to support its military programs.”¹⁵⁹ This idea is captured in the term “civil-military integration,” where a nation combines its defense industrial base with its commercial industrial base, thus using “common technologies, process, labor, equipment, material, and/or facilities” to satisfy the needs of both commercial and defense consumers.¹⁶⁰ In China, civil-military integration is not new. From the late 1970s into the 1990s, China promoted policies that required China’s defense industry to support the development of China’s civilian economy. However, in the late 1990s, Beijing reversed the direction of civil-military integration to capitalize on China’s growing civilian economy as a means to develop its moribund defense economy.¹⁶¹ As the Commission heard during a meeting in Beijing with the Ministry of Science and Technology, collaboration on research between the commercial and defense sectors occurs when “goals are consistent,” minimizing the use of resources on similar projects.

China’s Guiding Concept of Civil-Military Integration

In 2003, Beijing promulgated an official slogan to promote the use of China’s commercial industrial base to rejuvenate its failing defense economy after decades of government neglect. This slogan has four phrases and can be summarized as follows:

Combine civil and military needs—focus on increasing the amount and pace of both military-to-civilian and civilian-to-military technology transfers;

Locate military potential in civilian capabilities—establish civilian enterprises that are able to satisfy the requirements of the military and defense economy;

Promote coordination and cooperation—promote close cooperation among various commercial and military entities involved in research and development; and

Conduct independent innovation—ensure that China is self-reliant when it comes to developing its military equipment.¹⁶²

Advances made in China’s commercial aviation industry directly benefit its military aviation manufacturing capabilities. “Instead of

relying on its own resources, the [military] aviation and defense industries seek to make use of commercially available technologies and manufacturing processes as a suitable substitute,” stated Dr. Cheung.¹⁶³ Despite a division on paper between China’s civilian and military aviation firms, “military and civilian assembly lines remain co-located, to ease the sharing of skills and technology,” testified Richard D. Fisher, Jr., senior fellow at the International Assessment and Strategy Center.¹⁶⁴ Particular areas where commercially available technology and know-how have been included into military aircraft include avionics, microelectronics, composite materials, information technologies, and computer-aided manufacturing processes.¹⁶⁵

One important technological advance transferred from the commercial to the military sector is composite materials. In military aviation, composite materials are a crucial component for constructing lighter and stealthier military aircraft. Much of China’s knowledge of composite materials originated from western firms working with Chinese commercial aviation manufacturers. For example, Mr. Ulman noted that China’s commercial aviation industry acquired composite material technology, equipment, and know-how from joint ventures with western aviation industries, which in turn allowed the military manufacturing sector “to increase the quantity and quality of composite materials in Chinese military aircraft.”¹⁶⁶ A possible example of this pathway is the decade-long joint venture among two U.S. firms, Boeing and the Hexcel Corporation, and the Aviation Industry Corporation of China to produce composite materials in China.* Demonstrating another path, David Wang, president of Boeing China, noted that Boeing also is working with the Chinese Academy of Sciences to research composite materials.¹⁶⁷

Implications for the United States

Changes in China’s aviation market and the development of its aviation industrial base have three main implications for the United States. First, because of the projected growth in the demand for air travel in China, and China’s current lack of domestic production capability, U.S. aviation-related exports to China could rise in the near to medium term. In the longer term, however, a stronger China aviation industrial base could increasingly compete with U.S. aviation manufacturers, resulting in the loss of U.S. aviation exports to China and third-country markets, as well as possibly even a decrease in their share of the U.S. domestic market. Finally, continued close interaction between China’s commercial and military aviation sectors will strengthen China’s military air capabilities.

Rising demand in China for commercial aircraft in the coming years could provide an opportunity for the United States to increase its already substantial aviation-related exports to China (see

*This joint venture was originally formed in 1999 among Boeing, Hextel, and the Aviation Industry of China and began production in 2002. In 2008, Boeing bought out Hextel, increasing Boeing’s share in the venture to 88 percent. In August 2010, Boeing announced that it would be doubling size of the factory over the next few years. *China Daily*, “Boeing to Piece Together Composite Factory,” August 26, 2010. http://www.china.org.cn/business/2010-08/26/content_20795312.htm; and *Business Wire*, “Hexcel-Boeing Joint Ventures to Produce Aerospace Structures in China and Malaysia Formally Open,” September 16, 2002. <http://www.allbusiness.com/defense-aerospace/aerospace-industry-commercial-general/5931651-1.html>.

the table below for recent import-export data). Since 2001, China's domestic air travel has grown by 197 percent, surpassing 449 million travelers in 2009, a 22 percent increase over 2008.¹⁶⁸ Projected to continue to grow, the increasing demand for air travel will cause China to emerge as one of the world's largest aviation markets over the next two decades.¹⁶⁹ According to industry estimates, China will require roughly 3,800 aircraft by 2030, with a market value of \$400 billion.¹⁷⁰ Boeing anticipates that upwards of 70 percent of this demand will be for single-aisle, large commercial aircraft, similar to Boeing's 737 and Airbus' A320.¹⁷¹ "U.S. companies throughout the aerospace supply chain are well positioned to capitalize on [China's aviation] growth, expanding U.S. exports, and jobs," stated Deputy Assistant Secretary Saunders.¹⁷²

Even if China successfully develops its own commercial aircraft, it will be unable to satisfy such a large demand for aircraft solely by relying upon domestic suppliers, testified Dan Elwell, vice president of the Aerospace Industries Association of America. U.S. manufacturers also could benefit from potential aftermarket sales, as well as by supplying components and parts to China's domestic aviation projects.¹⁷³ For example, according to industry analysts, 13 of the at least 20 foreign firms supplying components to the ARJ-21 are American. In addition, China also has contracted with foreign firms to provide key components for the C919 large commercial aircraft. Currently, six U.S. companies (out of 13 total foreign companies) have contracted to provide parts and systems for the C919 project.*

Table 9: U.S.-China Aviation-related Trade (2001-09)

	2001	2002	2003	2004	2005	2006	2007	2008	2009
U.S. imports from China									
% of total U.S. aerospace imports	0.3%	0.3%	0.4%	0.6%	0.6%	0.8%	1.0%	1.1%	1.3%
\$ (millions)	\$90	\$86	\$105	\$159	\$171	\$254	\$368	\$406	\$421
U.S. exports to China									
% of total U.S. aerospace exports	4.4%	6.2%	5.1%	3.4%	6.0%	6.4%	6.2%	4.7%	6.5%
\$ (millions)	\$2,591	\$3,526	\$2,684	\$1,814	\$3,748	\$4,791	\$5,183	\$3,874	\$5,314

Sources: U.S. Bureau of the Census, "Top Twenty Aerospace Suppliers to the U.S." (Washington, DC: U.S. Department of Commerce, September 3, 2010). http://trade.gov/wcm/groups/internet/@trade/@mas/@man/@aai/documents/web_content/aero_stat_top20imp.pdf; and U.S. Bureau of the Census, "Top Twenty U.S. Aerospace Export Markets" (Washington, DC: U.S. Department of Commerce, September 3, 2010). http://trade.gov/wcm/groups/internet/@trade/@mas/@man/@aai/documents/web_content/aero_stat_top20exp.pdf.

*The U.S. suppliers to the ARJ-21 program include Eaton Aerospace, Rockwell Collins, Sagem, Aircraft Braking Systems, B/E Aerospace, Goodrich, Goodrich Aerospace (Hella), Hamilton Sundstrand, Honeywell, Kaiser Electroprecision, Kidde Aerospace and Defense, MPC Products, and Parker Hannifan. The U.S. companies providing components to the C919 project include General Electric, Eaton Aerospace, Rockwell Collins, Honeywell, Goodrich, and Parker Hannifan. U.S.-China Economic and Security Review Commission, *Hearing on China's Emergent Military Aerospace and Commercial Aviation Capabilities*, written testimony of Peder A. Andersen, May 20, 2010; Richard Abouafia, "ACAC ARJ-21," *World Military & Civil Aircraft Briefing*, November 2009, pp. 1-2; Lu Haoting, "New Aircraft Targets Airbus-Boeing Duopoly," *China Daily*, November 5, 2008. OSC ID: CPP20081105968061. <http://www.opensource.gov>; Philip Butterworth-Hayes, "China's Short March to Aerospace Autonomy," *Aerospace America* (February 2010), p. 30; and Reinhardt Krause, "China's Jet Ambition a Boon to Suppliers—Or Their Bane?" *Investor's Business Daily*, August 18, 2010. <http://www.investors.com/NewsAndAnalysis/Article/544256/201008181859/Chinas-Jet-Ambition-A-Boon-To-Suppliers-and151-Or-Their-Bane.aspx>.

At the same time, however, there is the potential that as China's commercial aviation industrial base improves, it will have a negative impact on U.S. economic security. First, although China likely will continue to rely on foreign imports in the near future, there is no guarantee that China will continue to purchase U.S. aircraft. Given Beijing's goal of having the ARJ-21 and C919 aircraft compete with foreign aircraft manufacturers, it is probable that Beijing will compel more of its state-owned domestic airlines to purchase Chinese aircraft rather than foreign aircraft.¹⁷⁴ In addition, the continued presence of technology and know-how offsets, the increase in joint ventures between foreign and Chinese aviation manufacturing firms, and the growth in sourcing of aviation components from Chinese manufacturers will likely improve China's aviation industrial base, making it increasingly capable of competing with U.S. aircraft and aviation-related component manufacturers both in China and abroad.¹⁷⁵ For example, according to the vice president for Business Development at Boeing China, "Boeing partnerships in China are strategically chosen for long-term benefits to all. The company works on projects that help Chinese partners gain technical and manufacturing experience, which enables the delivery of aviation products with superior quality and value."¹⁷⁶ A Boeing spokesman was recently quoted as stating that Boeing is now the "Chinese aviation industry's largest foreign customer" and that "Chinese suppliers now have a role in all Boeing airplanes."¹⁷⁷ Moreover, more than a third of Boeing's total aircraft parts come from China.¹⁷⁸ Finally, the rise of China's commercial aviation industrial base could displace U.S. aviation manufacturing jobs, affecting a workforce that includes more than 492,000 highly skilled people.¹⁷⁹ Summing up the potential threat of China's growing aviation industrial base to the United States, Owen E. Herrnsstadt, director of trade and globalization at the International Association of Machinists and Aerospace Workers, testified that:

[t]ransfers of production and technology from U.S. aerospace and related companies [to China] cost U.S. aerospace jobs and lead to a further decline in our aerospace industrial base in at least four different but related ways: First, jobs that may be associated with the transfer of technology and production are lost; second, the skills that accompany the transfers are lost, leading to a further decline in our industrial base; third, future jobs are lost as China (and other countries) utilizes the transfer from the U.S. to create and strengthen their own aerospace companies that compete directly with U.S. companies; and fourth, the technology and production that would have led to more U.S. jobs through the development of innovative products is lost.¹⁸⁰

Table 10: Chinese Suppliers to Boeing Aircraft

Chinese Supplier	Work package	Aircraft type (to include variants)
BHA Aero Composites	Composite panels and parts Composite panels, door liners, fixed trailing edge Wing fixed trailing edges and dry bay barriers, empennage panels Wing fixed trailing edges and dry bay barriers, empennage panels, flight deck interior panels	Boeing 737 Boeing 747 Boeing 767 Boeing 777
Chengdu Aircraft Corporation	Forward entry doors, over wing exit doors Aileron and spoilers Horizontal stabilizers and subassemblies Composite rudder	Boeing 737 Boeing 747 Boeing 747 Boeing 787
Hafei Company	Wing-to-body fairing panels	Boeing 787
Shanghai Aviation Industries Group	Horizontal stabilizers Parts for vertical fin, horizontal stabilizer	Boeing 737 Boeing 737
Shenyang Commercial Aircraft	Aft fuselage subassemblies	Boeing 737
Xian Aircraft	Fuselage section, vertical fin Fixed trailing edge wing ribs	Boeing 737 Boeing 747

Source: Adapted from Philip Butterworth-Hayes, "China's Short March to Aerospace Autonomy," *Aerospace America* (February 2010), p. 28

Finally, improvements in China's military aviation industry as a result of its close working relationship with China's commercial sector could impact the U.S. military. Technology and processes perfected in China's commercial aviation industry will strengthen China's military aviation industry. This in turn will increase China's air combat capability and contribute to China's capacity to hinder the U.S. military's ability to operate freely in East Asia. (For more on China's increasing air power, see chap. 2, sec. 1, of this Report.)

Conclusions

- Given the close integration of China's commercial and military aviation sectors, advances in China's commercial aviation industry gained through interactions with western aviation manufacturers directly benefit China's defense aviation industry. As China's commercial aircraft manufacturing capabilities improve, newly acquired technology and know-how, such as composite materials production, are directly transferred to the defense aviation sector.
- Over the past decade, China's aviation industrial base, with the strong support of the Chinese government, has improved substantially. China currently is capable of developing and producing both advanced commercial and military aircraft and seeks to compete with foreign aviation manufacturing companies in the near future. Despite these advances, however, the industry continues to experience some problems, most notably in producing advanced engines.

- China's aviation industrial base benefits from several practices that bear watching. In particular, the industry enjoys strong government support that favors domestic firms over foreign firms and also benefits from technology and know-how offsets from western aviation firms in exchange for market access.
- Developments in China's aviation industry pose both benefits and challenges to the United States. In the near term, U.S. aviation manufacturing firms stand to benefit from increased aviation exports to China. However, as China's aviation manufacturing firms improve, U.S. aircraft and aviation component manufacturing companies will likely face increased competition from these aviation firms in China's domestic, third country, and U.S. markets.

RECOMMENDATIONS

China's Growing Air and Conventional Missile Capabilities

- The Commission recommends that Congress require the Department of Defense, as part of the appropriate Combatant Commander's annual posture statement to Congress, to report on the adequacy of the U.S. military's capacity to withstand a Chinese air and missile assault on regional bases, as well as a list of concrete steps required to further strengthen their bases' capacity to survive such an assault and continue or resume operation.
- The Commission recommends that Congress assess the adequacy of resources available to Department of Defense's programs that seek to defend U.S. forward-deployed bases. Key programs include theater missile defense and early warning systems, hardened structures and hangers, air defense systems, and runway repair kits.
- The Commission recommends that Congress assess the adequacy of resources available to Department of Defense's programs that seek to counter China's anti-access capabilities. Key programs include long-range strike platforms, electronic warfare systems, and advanced air-to-air platforms and weapons, such as fifth generation fighters and air-to-air missiles.
- The Commission recommends that Congress urge the Department of Defense to continue to strengthen its interaction with allies in the Western Pacific. In addition, the department should expand its outreach to other nations in Asia in order to demonstrate the United State's continued commitment to the region.
- The Commission recommends that Congress urge the administration to work with allies in the region to strengthen their air and missile defense capabilities.

Developments in China's Commercial and Military Aviation Industry

- The Commission recommends that Congress urge the administration to investigate whether Beijing's policies for developing its aviation industry conflict with China's World Trade Organization commitments. Specifically, the administration should look into China's requirement for offsets in exchange for market access and government policies that favor domestic aviation manufacturing firms over foreign ones.
- The Commission recommends that Congress should review with the Department of Justice whether or not any U.S. antitrust laws, rules, and regulations impede cooperation within the air-

craft manufacturing industry to resist Chinese offset demands, and should legally authorize such cooperation, if necessary.

- The Commission recommends that Congress encourage the administration to closely monitor the transfer of technology and know-how from China's commercial aviation sector to its military aviation sector. Such monitoring should examine what impact new cooperative production, technology-sharing or other arrangements by U.S. or foreign firms might have in promoting the development of China's indigenous civilian and/or military aviation production capabilities.
- The Commission recommends that Congress hold hearings to assess administration efforts to accelerate the certification by the Federal Aviation Administration of Chinese indigenously-produced aircraft and what impact that may have on the sale of U.S. aircraft.

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CHAPTER 3

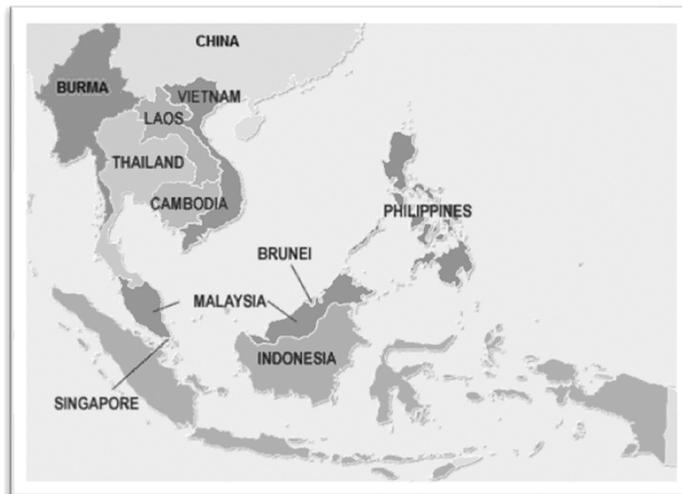
CHINA IN ASIA

SECTION 1: CHINA IN SOUTHEAST ASIA

Introduction

Through a combination of hearings, two fact-finding trips to East Asia, and research over the past year, the Commission learned about recent changes to China's relationship with the nations of Southeast Asia and how this may impact U.S. interests in the region. Despite a tumultuous history between China and Southeast Asia (see textbox for more details), Beijing has taken significant measures to improve its ties with the region in recent years. It has pursued these measures in order to further China's political, economic, energy, and security interests in the region. Beijing has worked to engage Southeast Asia diplomatically, to become more involved in regional organizations, to increase trade and investment, to develop energy partnerships, and to explore opportunities for military and security cooperation. Although these activities have increased Beijing's influence in Southeast Asia, many tensions still exist between Southeast Asian nations and China and, with some countries, the tensions are growing.

Figure 1: Map of Southeast Asia



Source: ASEAN [Association of Southeast Asian Nations]-Japan Center, "Introduction of the ASEAN Member Countries." <http://old.asean.or.jp/eng/general/info/index.html>.

This section of the Commission's Report will describe China's interests and activities in the region and how they may affect U.S. interests in Southeast Asia. For the purpose of this Report, Southeast Asia is defined as the region including the following countries: Brunei, Burma (Myanmar), Cambodia, Indonesia, Laos, Malaysia, the Philippines, Singapore, Thailand, and Vietnam.

Historical Legacy of China-Southeast Asia Relations

Immediately following the establishment of the People's Republic of China in 1949, China's main interaction with Southeast Asia was its support for Communist insurgencies in Indonesia, Laos, Malaysia, the Philippines, Singapore, Thailand, and Vietnam. By the early 1990s, China had resumed formal ties with all of the nations of Southeast Asia, including Vietnam, with whom it had fought a brief, but bloody, war in 1979. Nevertheless, as China began to develop economically and militarily, its neighbors to the south began to view its growing strength as a potential threat. Southeast Asian views of China's aggressiveness were reinforced by Beijing's attempts to exercise sovereignty claims during the Taiwan Strait crisis in 1995–1996 and more recently in the South China Sea.¹

In the late 1990s, Beijing took several steps to assuage Southeast Asian concerns that China could be a destabilizing force in the region. In 1997, the Asian financial crisis hit, severely affecting the economies of Indonesia, Malaysia, the Philippines, Thailand, and Vietnam. China's response, which included a decision not to devalue its currency, to make contributions to International Monetary Fund (IMF) rescue plans, and to give additional financial support to Thailand, significantly reduced Southeast Asian apprehension.² In the late 1990s, China also unveiled its "New Security Concept," asserting that Beijing would use economic and diplomatic interaction to increase security in the region and would promote dialogue above the use of force. The concept resonated with the countries of Southeast Asia and, combined with Chinese actions during the Asian financial crisis, allowed Beijing dramatically to improve its image in the region.³

China's Political Objectives and Activities in Southeast Asia

China has three major political objectives in Southeast Asia. First, Beijing seeks to pull Southeast Asia into its sphere of influence. As Beijing increases its influence in the region, it also is able to maneuver more freely to achieve wider political, economic, and security goals. In addition, Beijing can ensure that Southeast Asian nations do not act in ways that are counter to these interests. While experts differ on whether China wishes to assert dominance over the region, it is clear that China is interested in being a prominent extraregional actor in Southeast Asia in order to balance influence from the United States, Japan, Australia, the European Union, and India. This allows China to compete more effectively in the region when its interests conflict with those of the other extraregional actors.⁴

A second political objective for China is portraying itself as a peaceful neighbor. According to Andrew Scobell, then associate professor at Texas A&M University, in the late 1990s “China recognized that it possessed an image problem in [Southeast Asia]” due to its aggressive actions in the region and its rapid economic growth.⁵ As a result, Beijing has been working to convince Southeast Asian nations that its economic growth and military modernization efforts do not pose a threat to the status quo. In doing so, Beijing hopes to prevent political backlash from Southeast Asians against its broader policies in the region.⁶

Thirdly, China looks to isolate Taiwan from becoming an international actor and to deter Southeast Asian nations from engaging with what China considers a rogue province. Indeed, since the late 1990s when China stepped up its political engagement with the region, Southeast Asian nations have been more reluctant to engage Taiwan. Bronson Percival, senior advisor at the Center for Naval Analysis, maintains that:

By the start of the new century, Beijing was in a position to block all visits by Taiwan’s President to Southeast Asia, and no head of state or government in Southeast Asia visited Taiwan. Moreover, Southeast Asian leaders and officials were increasingly reluctant to meet with their lower-ranking Taiwanese counterparts.⁷

In addition, Southeast Asian nations have been reluctant to incorporate Taiwan into regional organizations and negotiate free trade agreements with the island because of a possible political backlash from Beijing.⁸ In late August 2010, however, Singapore and Taiwan announced that they were beginning negotiations for a free trade agreement.⁹ The Philippines also has announced that it is considering a trade agreement with Taiwan.¹⁰ During the Commission’s July 2010 trip to China, an official from China’s Ministry of Foreign Affairs stated that China resolutely opposes Taiwan’s signing free trade agreements with any government.

In order to promote the aforementioned objectives, China employs a number of political tools to engage Southeast Asian nations. Diplomatic visits are a large component of this political activity. Since 2009, senior-level Chinese leaders have visited all ten countries in Southeast Asia on almost 30 trips to the region.¹¹ During many of these visits, Chinese leaders signed agreements to provide development aid and preferential loans to the host country. China distributes a large portion of this aid to the poorer mainland Southeast Asian countries.* Although Beijing does not publicly release foreign aid data, according to Thomas Lum of the Congressional Research Service, “China is considered to be the primary economic patron of the small but strategically important nations of Burma, Cambodia, and Laos.”¹² Chinese aid is given without requiring any accompanying political or human rights standards.¹³ This approach has the potential to undermine U.S. interests in promoting democracy and human rights in the region. For example, in 2003, China provided Burma with a \$200 million loan after the United States

*For the purposes of this report, mainland Southeast Asia includes Burma, Cambodia, Laos, Thailand, and Vietnam. Maritime Southeast Asia includes Brunei, Indonesia, Malaysia, the Philippines, and Singapore.

imposed sanctions against Burma for human rights violations.¹⁴ In addition, in December 2009, Chinese Vice President Xi Jinping traveled to Cambodia to announce \$1.2 billion in aid and loans for Cambodia.* Only one day prior to Vice President Xi's arrival, Cambodian authorities forcibly deported 20 Uighur asylum seekers to China.¹⁵ Prior to this forced return, the United Nations (UN) High Commissioner for Human Rights had expressed concern to the Cambodian government about the potential deportations to China. Both China and Cambodia are signatories of the 1951 UN Convention on the Status of Refugees, which obligates parties to cooperate with the UN High Commissioner for Human Rights.¹⁶

**Table 1: Chinese High-Ranking Official Visits to Southeast Asia
January–September 2010**

Date	Description
Jan. 2010	Vice Minister of Foreign Affairs Dai Bingguo visited Singapore, Indonesia, and Brunei
Mar. 2010	Vice Premier of the State Council and member of the Political Bureau of the Communist Party of China (CPC) Central Committee Hui Liangyu visited Cambodia
Apr. 2010	Vice Minister of Foreign Affairs Song Tao attended the first Mekong River Commission Summit in Thailand
May 2010	Director of the General Political Department of the People's Liberation Army (PLA) and member of the Central Military Commission Li Jinai visited Vietnam
May 2010	Vice Chairman of the Central Military Commission and member of the Political Bureau of the CPC Central Committee Guo Boxiong visited Singapore
May 2010	Vice Minister of Public Security Zhang Xinfeng visited Cambodia
Jun. 2010	Premier of the State Council and member of the Standing Committee of the Political Bureau of the CPC Central Committee Wen Jiabao visited Burma
Jun. 2010	Vice President and member of the Standing Committee of the Political Bureau of the CPC Central Committee Xi Jinping visited Laos
Jun. 2010	Deputy Chief of General Staff of the PLA Ma Xiaotian visited Singapore
Jun. 2010	Vice Minister of Transportation Gao Hongfeng visited Cambodia
July 2010	Minister of Foreign Affairs Yang Jiechi attended the Association of Southeast Asian Nations (ASEAN) Foreign Ministers' meeting in Vietnam
Aug. 2010	Minister of Commerce Chen Deming visited Vietnam

Sources: Ministry of Foreign Affairs of the People's Republic of China, "Diplomatic Agenda, Activities." <http://www.fmprc.gov.cn/eng/wjdt/wsrc/default.htm>; Robert Sutter and Chin-Hao Huang, "China-Southeast Asia Relations: Senior Official Visits; South China Sea Tensions," *Comparative Connections* 12:2 (June 2010): 74–76.

* Only a small portion of this amount qualifies as Official Development Assistance, as laid out by the Organization for Economic Cooperation and Development. However, because China does not release official figures for aid, it is unclear how much of this amount includes concessional loans (which qualify as Official Development Assistance) rather than export buyers' credits and nonconcessional loans (which do not qualify as Official Development Assistance).

China also actively engages with several regional organizations that are an essential part of Southeast Asia's interactions with the rest of the world. The primary regional forum China interacts with is the Association of Southeast Asian Nations (ASEAN). While not a member of ASEAN, China has engaged actively with the group since 1991 and has held a total of 12 China-ASEAN summits.¹⁷ Chinese ministers often attend ASEAN meetings as guests of individual member countries. China uses these summits to enhance economic and trade cooperation, promote infrastructure development, and improve people-to-people contacts between the two sides.¹⁸ In addition to ASEAN, China has become a member of other regional forums, such as ASEAN+3, the East Asian Summit, and the ASEAN Regional Forum. (See textbox below.) Chinese foreign policymakers view participation with regional forums as a diplomatic opportunity to improve ties and gain leverage in the region by demonstrating Beijing's willingness to follow Southeast Asian norms.¹⁹ These forums also provide Beijing with the opportunity to engage in bilateral discussions with other members on the sidelines.²⁰ In addition, by becoming more involved in regional groups, Beijing precludes meaningful involvement by Taiwan in these institutions and gives China an opportunity to engage with its Asian neighbors without U.S. involvement.²¹

Southeast Asian Regional Forums

ASEAN—Founded in 1967, the Association of Southeast Asian Nations includes Brunei, Burma, Cambodia, Indonesia, Laos, Malaysia, the Philippines, Singapore, Thailand, and Vietnam. ASEAN has characterized its style of diplomacy as the “ASEAN Way,” which emphasizes informality, consensus, nonintervention in foreign affairs, and moving at a pace that is comfortable for all members.²²

ASEAN+3—ASEAN+3 was established in 1997 and consists of the ten members of ASEAN plus China, South Korea, and Japan. The leaders of the 13 nations meet annually to discuss major international and regional concerns, including transnational crime, finance issues, energy, rural development and poverty eradication, and disaster management.²³ According to Ellen Frost, visiting fellow at the Peterson Institute for International Economics, “ASEAN+3 is the most institutionalized [of the Southeast Asian regional forums], the most active in different fields and at different levels, and the most effective.”²⁴

East Asian Summit—The East Asian Summit was founded in 2005 and consists of the 13 members of ASEAN+3, Australia, India, New Zealand, Russia, and the United States.* The summit is held after the annual meetings of ASEAN heads of state. Several western analysts have described the East Asian Summit as a “talk shop” that does not produce concrete policies, or as a “dinner followed by 16 speeches.”²⁵

*The United States and Russia joined the East Asian Summit in July 2010.

Southeast Asian Regional Forums—Continued

ASEAN Regional Forum—Founded in 1994, the ASEAN Regional Forum groups together 27 nations' foreign ministers to discuss regional security issues. Included among its members are the members of the East Asian Summit group, the United States, the European Union, Russia, and several other countries, including North Korea.* According to Dr. Frost, "Its members prevent any discussion of genuine military threats, notably those stemming from China-Taiwan relations and North Korean nuclear weapons . . . For [this] reason, the [ASEAN Regional Forum] has been declared dead or dying many times."²⁶

Shangri-La Dialogue—The Shangri-La Dialogue is an annual security dialogue in Singapore between defense ministers, military officers, diplomats, and academics in the Asia-Pacific region.† The meeting was first held in 2002 and is organized by the International Institute of Strategic Studies, a think tank based in the United Kingdom. At the most recent Shangri-La Dialogue in June 2010, over 300 top military officials and analysts from a total of 27 countries discussed an array of security issues in Asia, including North Korea, disputes in the South China Sea, and U.S.-China military cooperation.²⁷

Another tool that China uses is the promotion of Chinese culture in Southeast Asia. Two methods Beijing employs to accomplish this are (1) attracting Southeast Asian students to study in China and (2) establishing Chinese-language schools in the region. China has lowered barriers for foreign students to obtain visas and offered financial aid for Southeast Asians to study in China. From 2007 to 2009, the number of Indonesian students receiving visas to study in China increased by more than 30 percent, to 7,900 students.‡²⁸ According to testimony from Deputy Assistant Secretary of State for East Asian and Pacific Affairs David Shear, almost 10,000 more Thai students now study in China than in the United States.²⁹ In addition, China has sponsored the establishment of 31 "Confucius Institutes" in Southeast Asia, 23 of which are located in Thailand. These institutes are funded by China's Ministry of Education and are intended to promote the study of Chinese language and culture throughout the world.³⁰ Joshua Kurlantzick, fellow at the Council on Foreign Relations, has argued that Confucius Institutes are an important tool for China to increase its soft power abroad.³¹

*The members of the ASEAN Regional Forum are Australia, Bangladesh, Brunei, Burma, Cambodia, Canada, China, the European Union, India, Indonesia, Japan, North Korea, South Korea, Laos, Malaysia, Mongolia, New Zealand, Pakistan, Papua New Guinea, the Philippines, Russia, Singapore, Sri Lanka, Thailand, Timor Leste, the United States, and Vietnam.

†Since the first meeting in 2002, the countries that have participated in the Shangri-La Dialogue include Australia, Bangladesh, Brunei, Burma, Cambodia, Canada, Chile, China, France, Germany, India, Indonesia, Japan, Laos, Malaysia, Mongolia, New Zealand, Pakistan, the Philippines, Russia, Singapore, South Korea, Sri Lanka, Thailand, Timor Leste, the United Kingdom, the United States, and Vietnam.

‡There were 7,700 students from Indonesia studying in the United States in 2009.

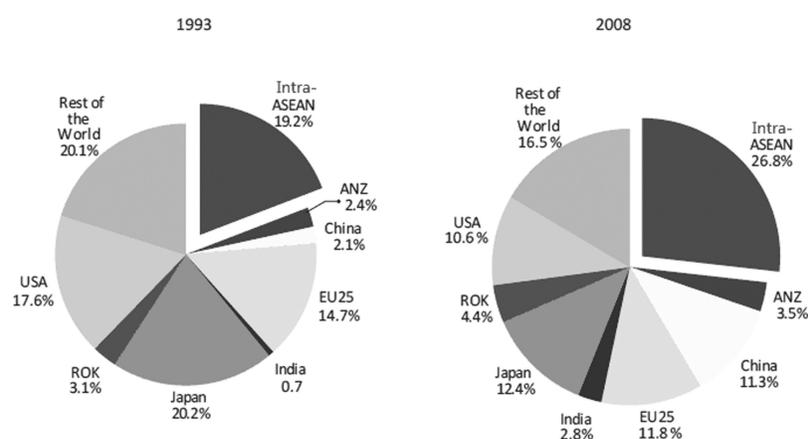
China's Economic Objectives and Activities in Southeast Asia

China is heavily involved in trade, investment, and financing of development in both mainland and maritime Southeast Asia. These commercial activities not only provide profits for Chinese companies but also support the building of infrastructure to facilitate Chinese trade in energy and natural resources.

Chinese Trade with Southeast Asia

One of China's primary objectives in the region is increasing trade. In testimony to the Commission, Walter Lohman, director of the Asian Studies Center at The Heritage Foundation, stated that "(t)he first three priorities for ASEAN are trade, trade, and trade."³² From 1993 to 2008, China's share of total ASEAN trade increased from 2 percent to 11 percent (see figure 2 below). In 2008, trade between China and Southeast Asia totaled \$192.67 billion, making it the region's largest trading partner.³³ Southeast Asia holds a \$21.06 billion trade deficit with China (see table 2 below).³⁴ A large portion of Chinese exports from Southeast Asia to China consists of natural resources, including timber, coal, coke, copper, and rubber.³⁵ However, China is increasingly importing manufactured products from maritime Southeast Asia, reflecting China's move toward higher value-added production. These products include parts for office machines, electronic microcircuits, and parts for telecommunications equipment.³⁶ The majority of Chinese exports to ASEAN consists of electronics equipment.³⁷

Figure 2: Share of ASEAN Trade with Selected Trade Partners, 1993 and 2008



NOTES: Australia and New Zealand=ANZ. Republic of Korea=ROK. Percentages for ASEAN include the amount of trade that ASEAN countries conduct with one another.

Source: Adapted from ASEAN Secretariat, "ASEAN Economic Community Chartbook 2009" (Jakarta, Indonesia: September 2009).

* In comparison, the U.S. share of trade with ASEAN decreased from 18 percent to 11 percent from 1993 to 2008. In 2009, ASEAN held a \$14.83 billion trade surplus with the United States.

Table 2: Chinese Trade with Southeast Asian Countries in 2008
(in billions of US dollars)

Country	Imports from China	Exports to China	Trade Balance	Total Trade	% of Total Trade with China
Brunei	\$0.17	\$0	-\$0.17	\$0.17	0.09%
Burma	\$0.67	\$0.5	-\$0.17	\$1.17	0.61%
Cambodia	\$0.93	\$0.01	-\$0.92	\$0.95	0.49%
Indonesia	\$15.25	\$11.64	-\$3.61	\$26.88	13.95%
Laos	\$0.13	\$0.02	-\$0.01	\$0.15	0.08%
Malaysia	\$18.65	\$18.42	-\$0.23	\$37.07	19.24%
Philippines	\$4.25	\$5.47	\$1.22	\$9.72	5.04%
Singapore	\$31.58	\$29.08	-\$2.5	\$60.67	31.49%
Thailand	\$19.94	\$15.93	-\$4.09	\$35.87	18.62%
Vietnam	\$15.55	\$4.49	-\$11.06	\$20.04	10.4%
Total	\$107.11	\$85.56	-\$21.55	\$192.67	100%

Source: Adapted from ASEAN Secretariat, "ASEAN Community in Figures 2009" (Jakarta, Indonesia: February 2010). <http://www.aseansec.org/publications/ACIF2009.pdf>.

Trade is likely to increase in the coming years because of the China-ASEAN Free Trade Agreement, which came into full effect on January 1, 2010. In testimony to the Commission, Ernest Bower, senior advisor at the Center for Strategic and International Studies, noted that this agreement has lower-level commitments than what the United States considers a free trade agreement.* Nevertheless, he stated:

[The China-ASEAN Free Trade Agreement] creates an economic region of 13 million square kilometers with 1.9 billion consumers, a regional GDP [gross domestic product] of about \$6 trillion. . . . It is also the biggest [free trade agreement] in the world in terms of population size and the third largest in terms of economic value after [the European Union] and [the North American Free Trade Agreement]. The China-ASEAN Free Trade Agreement may not be comprehensive, but its impact is practical and it is clearly having a strong impact on the economic integration of China and ASEAN and East Asia generally.³⁸

While the total volume of trade is likely to increase, there may be numerous negative implications as well. Some Southeast Asian countries, such as Indonesia and Vietnam, have expressed reservations about the preferential trade agreement because of increased competition from China in industries such as textiles, food, and electronics.³⁹ During the Commission's December 2009 trip to Vietnam, officials from Vietnam's Ministry of Industry and Trade stat-

* China first proposed the China-ASEAN Free Trade Agreement in 2000. By 2004, the two sides began reducing tariffs on more than 7,000 goods. Despite coming into full effect in January 2010, the China-ASEAN Free Trade Agreement postpones the cutting of tariffs for the four poorest ASEAN members (Burma, Cambodia, Laos, and Vietnam) until 2015. In addition, each Southeast Asian nation may list dozens of sensitive areas where tariffs can still apply, from ports to cars to popcorn.

ed that Hanoi is already concerned about Vietnam's trade deficit with China, which reached \$11.1 billion in 2008 and formed a significant portion of Southeast Asia's total deficit with China. The China-ASEAN Free Trade Agreement may further widen this deficit.⁴⁰ Some analysts assert that the preferential trade agreement could also cause damage to U.S. manufactured exports in certain product areas, such as autos and auto parts. One modeling exercise estimated trade losses for the United States up to \$25 billion annually.⁴¹

China's Foreign Direct Investment in Southeast Asia

Unlike its growing trade figures, China's foreign direct investment in Southeast Asia is relatively small. According to the ASEAN Secretariat, in 2008, China's annual foreign direct investment in Southeast Asia was \$2.11 billion, of which approximately 60 percent was in Singapore.* Burma and Cambodia received the second- and third-largest foreign direct investments from China in Southeast Asia, at 9 percent and 8 percent, respectively.⁴² China's cumulative foreign direct investment from 2007–2009 was less than a quarter of what the United States and Japan each invested, and one sixth of what the European Union invested in the same period.⁴³ However, China has taken several steps to increase its investment figures. At the most recent China-ASEAN Summit, China pledged up to \$25 billion in investment and commercial credits over the next three to five years.⁴⁴ In addition, the August 2009 China-ASEAN Investment Agreement commits China and ASEAN governments to protect foreign direct and portfolio investments and compensate for damages caused by civil disturbances.⁴⁵ It is still unclear whether the pledge and the investment agreement have led to tangible increases in investment.

Another main component of China's economic interaction with Southeast Asia is providing financial loans, many of which are for infrastructure development projects. These projects both facilitate trade with China and create business opportunities for Chinese companies. As part of the China-ASEAN Investment Agreement, the Export-Import Bank of China created a private equity fund, with the goal of raising \$10 billion to finance infrastructure development in Southeast Asia. These funds will go toward infrastructure projects in mainland Southeast Asia, such as the construction of harbors in the Mekong River subregion, and railways and highways that connect Vietnam and southwestern China.⁴⁶ Several of these agreements for joint infrastructure projects with mainland Southeast Asian governments contain provisions for upwards of 30,000 Chinese workers and their families to be settled on special "plantations" in the region, depriving local workers of employment

*There is disagreement among analysts as to whether this figure represents total Chinese foreign direct investment in Southeast Asia. According to Derek Scissors, research fellow at the Heritage Foundation, "The Chinese figure for direct investment into ASEAN is almost certainly too low, and by a notable amount. In all Chinese investment data to this point, Hong Kong is treated as a final destination, rather than a transit point. This is wildly inaccurate, producing results where a metropolitan area of 7 million people absorbs 70 percent of all Chinese outward investment, or \$38 billion in 2008 alone. Some of the money counted as investment in Hong Kong no doubt made its way to ASEAN, and a better estimate of the level of Chinese [foreign direct investment] in ASEAN [in 2008] is \$3.1 billion." Derek Scissors (research fellow at the Heritage Foundation), e-mail interview with Commission staff, October 5, 2010.

on these projects.*⁴⁷ China has also financed projects in maritime Southeast Asia. In the Philippines, the Export-Import Bank of China lent \$500 million to rehabilitate the Philippine National Railway's north line.⁴⁸ In addition, China and Indonesia agreed to maximize the allocation of \$1.8 billion of preferential export buyers' credits to finance power plant and toll road construction in Indonesia.⁴⁹ Mr. Bower testified that these projects are generally welcomed, but can often overlook the interests of Southeast Asians:

*Too often, Chinese funds are used to build unnecessary projects that serve political rather than practical requirements. These projects support local politicians and Chinese contractors and labor, but not the indigenous population.*⁵⁰

In addition to bilateral financing agreements, China has also committed to being involved in the Chiang Mai Initiative, a multilateral currency swap agreement. Donald Weatherbee, professor emeritus at the University of South Carolina, testified that the initiative is a regional alternative to the IMF for the members of ASEAN+3.⁵¹ It originally was established as a series of bilateral currency swap agreements designed to help manage balance of payments after the Asian financial crisis. However, in 2009, the ASEAN+3 finance ministers agreed to multilateralize the Chiang Mai Initiative and increase the pool of reserves to \$120 billion, of which China will contribute \$38.4 billion.[†]⁵²

China's Energy Objectives and Activities in Southeast Asia

A major component of China's trade and investment activity in Southeast Asia is in the energy sector. Southeast Asia has abundant oil and gas reserves. Proven reserves exist in six of the ten countries in ASEAN. In addition, the international waters of the South China Sea have at least 28 billion barrels of oil, with one Chinese study placing the amount as high as 213 billion barrels.⁵³ The U.S. Energy Information Agency estimates natural gas resources in the South China Sea to be almost 900 trillion cubic feet.⁵⁴

Seeking to meet its growing domestic energy demands and enhance energy security, China is actively working to acquire Southeast Asian oil, natural gas, and coal resources. Chinese oil and gas companies currently have exploration and production agreements with seven of the ten ASEAN countries (see table 3 below).⁵⁵ Chinese companies also have coal mining operations in all of the ASEAN countries except Singapore and Brunei (both of which lack coal reserves).⁵⁶ In the South China Sea, China has partnered with Vietnam and the Philippines to conduct joint seismic surveys and has considered trilateral oil and gas exploration in the sea. How-

* Catharin Dalpino testified to the Commission that these agreements serve as a "population pressure valve" for China's southern provinces. Not only does Chinese migration into Southeast Asia ease population growth, but it also provides opportunities for unemployed Chinese workers. U.S.-China Economic and Security Review Commission, *Hearing on China's Activities in Southeast Asia and the Implications for U.S. Interests*, written testimony of Catharin Dalpino, February 4, 2010.

† The other contributors to the fund include Japan (\$38.4 billion), South Korea (\$19.2 billion), Indonesia (\$4.8 billion), Singapore (\$4.8 billion), Thailand (\$4.8 billion), Malaysia (\$4.8 billion), Brunei (\$30 million), Cambodia (\$120 million), Laos (\$30 million), the Philippines (\$3.68 billion), and Vietnam (\$1 billion).

ever, due to territorial disputes* and domestic opposition in the Philippines to joint exploration, Chinese investment in the South China Sea has been limited to areas off the coast of Hong Kong.⁵⁷ (For more information on the territorial disputes in the South China Sea, see the subsection later in this chapter.)

Despite Chinese companies having investments in many countries, only 3 percent of China's total oil imports come from the Asia Pacific, down from 11.5 percent in 2004.[†]⁵⁸ Liquefied natural gas imports from Southeast Asia account for 24.9 percent of China's total gas imports.⁵⁹ However, as China attempts to curb its reliance on heavy carbon-emitting sources, such as coal, it is likely that its imports of cleaner natural gas from Southeast Asia will increase.⁶⁰ (For more information on China's clean energy efforts, see chap. 4, sec. 1, of this Report.)

Table 3: Select Oil and Gas Investments by China in Southeast Asia

Country	Description
Burma	China National Petroleum Corporation (CNPC) is building an oil pipeline and a natural gas pipeline that will cost a combined \$5 billion and connect to China's Yunnan Province. ⁶¹ The company also has production-sharing contracts for oil and gas exploration in three deep-water blocks in Burma. ⁶²
	In 2004, China Petroleum and Chemical Corporation (Sinopec) signed an agreement to explore for oil and gas in Burma's Rakhine State. The company has drilled three wells in northwest Burma, two of which have produced both oil and gas. ⁶³
	China National Offshore Oil Corporation (CNOOC) has signed memoranda of understanding for exploration and production in six petroleum blocks, two of which are part of a Sino-Singaporean consortium. ⁶⁴
Cambodia	In 2007, CNOOC signed an agreement with the Cambodian government to undertake oil and gas exploration in an offshore block in Cambodia. ⁶⁵
Indonesia	CNPC has investments in eight blocks in Indonesia and operates six of them. ⁶⁶ The company will increase investment in oil and gas exploration and production in Indonesia by 30 percent in 2010, with total investments worth \$639 million. ⁶⁷
	Citic Resources reported to have found six million barrels of recoverable crude oil off of Seram Island and has plans to drill four more wells in Indonesia. ⁶⁸
	Sinopec has a joint venture with an Indonesian state-owned company for joint oil production and the development of a \$1.1 billion refinery in East Java. ⁶⁹
	CNOOC has invested in eight blocks and operates two blocks in Indonesia, making it the country's largest offshore oil producer. In 2006, the company signed an agreement to buy 2.6 million tons of liquefied natural gas from BP's Tangguh project in Indonesia. ⁷⁰

*Parts of the South China Sea are claimed by China, Brunei, Indonesia, Malaysia, the Philippines, Taiwan, and Vietnam.

†The percentage of China's energy imports from Asia has declined as China has diversified its imports to include more supplies from the Middle East and Africa. Reserves of oil from these regions are more abundant, and crude is less expensive than supplies in Asia.

Table 3: Select Oil and Gas Investments by China in Southeast Asia—Continued

Country	Description
Laos	Citic Resources has a majority stake in one oil block and has invested \$97.4 million in exploration and production in Laos. ⁷¹
Malaysia	In 2009, CNPC signed a \$6 billion, 20-year deal to buy oil products from a planned refinery in northwest Malaysia. ⁷²
Singapore	In 2009, CNPC bought a minority stake in Singapore Petroleum Co. for \$1.1 billion. ⁷³
	Sinopec currently is in talks to build a large refining and petrochemical complex in Singapore. ⁷⁴
	In 2007, CNOOC signed a production-sharing contract with Singapore Petroleum Co. for an oil block in the South China Sea. ⁷⁵
Thailand	CNPC has investments in three oil and gas blocks in Thailand. ⁷⁶
Vietnam	Sinopec is part of a joint venture to build a \$4.5 billion petrochemical complex in Vietnam. ⁷⁷
	In 2006, CNOOC signed an agreement with PetroVietnam to explore the Gulf of Tonkin for oil and gas. ⁷⁸

Source: USCC staff compilation from various sources. For more information, see footnotes 61–78.

China also hopes that its energy production in mainland Southeast Asia will serve as a means of providing alternative supply routes, thus avoiding the need to transport oil and gas through maritime chokepoints. Currently, 80 percent of Chinese oil imports are shipped through the Malacca Strait, which separates Singapore and Malaysia from Indonesia.⁷⁹ In November 2003, President Hu Jintao highlighted what became dubbed as the “Malacca Dilemma,” noting that if “certain major powers” were bent on controlling the strait, China would have no independent source of energy except for what it could get over land.*⁸⁰ As discussed in the Commission’s 2009 Annual Report, Chinese security analysts continue to be concerned about this energy insecurity.⁸¹ To help address this problem, China National Petroleum Corporation (CNPC) has begun constructing a 690 mile crude oil pipeline and a 1,123 mile natural gas pipeline that will travel across Burma and connect to China’s Yunnan Province. The \$5 billion pipelines are estimated to be completed in 2013 and to deliver 22 million tons of crude oil and 39 billion cubic feet of natural gas per year to China.†⁸² The project is likely to generate about \$1 billion or more in annual revenue for Burma’s government over 30 years. The annual payment is the equivalent of one-third of the country’s foreign exchange reserves.⁸³

* Analysts consider President Hu’s reference to “certain major powers” to mean the United States and India.

† Of note, delivering oil to Yunnan Province through the Burma pipeline could cost more than \$4 per barrel, whereas shipping oil from the Middle East or Africa to Guangdong Province is less than \$2 per barrel.

China's Military and Security Activities in Southeast Asia

In order to support its various interests and goals in the region, China is involved in a number of military and security activities in Southeast Asia. Deputy Assistant Secretary of Defense for South and Southeast Asia Robert Scher testified to the Commission that “most Southeast Asian states are receptive to China’s defense engagement . . . and view defense ties as a natural complement to China’s increasing economic and diplomatic engagement.”⁸⁴ Indeed, China has a comprehensive security relationship with Burma and military ties with Thailand and Vietnam. In recent years, it has also reinvigorated defense ties with Cambodia and Laos. Additionally, according to Mr. Percival, China is beginning a “baby-step” military-to-military relationship with Indonesia, Malaysia, the Philippines, and Singapore.⁸⁵

Several examples of China’s defense cooperation with Southeast Asia include the following:

- *Military diplomacy*—China is a member of the ASEAN Regional Forum, the main regional forum for security cooperation in Southeast Asia. ASEAN Regional Forum meetings have resulted in only modest collaboration, leaving Beijing’s chief military diplomacy efforts to occur on a bilateral basis.⁸⁶ Senior Chinese military officials have visited each of the ten countries in Southeast Asia in the past three years.⁸⁷ In addition, in the past decade, the People’s Liberation Army (PLA) Navy has conducted several port calls in the region to serve as a visible reminder of China’s presence.⁸⁸
- *Arms sales*—Between 2000 and 2008, China sold an estimated \$264 million worth of arms to Southeast Asian countries. Of this total, over 60 percent were sold to Burma.*⁸⁹ Deputy Assistant Secretary of Defense Scher noted that weapons and military equipment sales “can often serve ends that are inconsistent with [those of the United States] as we seek to promote stability, good governance, rule of law, and respect for human rights.”⁹⁰ For example, in June 2010, China provided Cambodia with 257 military trucks after the United States cancelled a similar shipment when the Cambodian government deported a group of Uighurs back to China.⁹¹ Nevertheless, most Southeast Asian countries, especially in maritime Southeast Asia, prefer more sophisticated weaponry from Russia and the United States.⁹²
- *Nontraditional security cooperation*—China has pursued cooperation with Southeast Asia on issues such as epidemics, terrorism, piracy, and illicit trafficking. In 2002, China and ASEAN signed the *Joint Declaration on Nontraditional Security Issues*, which enhances intelligence-sharing, training, and other forms of cooperation to curtail transnational crime.⁹³ China also has cohosted an ASEAN Regional Forum seminar

*China’s military sales to Burma include antiship cruise missiles, targeting radar, naval guns, and corvettes. Some analysts maintain that in return for this military support (and other economic support), Burma is willing to give China access to its territory along the Indian Ocean. Dean Cheng, “China’s view of South Asia and the Indian Ocean” (Washington, DC: The Heritage Foundation, August 31, 2010). <http://www.heritage.org/research/lecture/china-s-view-of-south-asia-and-the-indian-ocean>.

on narcotics control and is a party to the *ASEAN Regional Forum General Guidelines for Disaster Relief Cooperation*.⁹⁴ More recently, in May 2010, Zhang Xinfeng, vice minister of the Ministry of Public Security, pledged to increase police cooperation and information-sharing between China and ASEAN members.⁹⁵

- *Military exercises*—China also conducts military exercises with Southeast Asian countries. Two recent examples include joint counterterrorism training with Thailand in 2008 and joint maritime exercises with Singapore in 2009.*

China's security engagement with the region remains fairly small. Deputy Assistant Secretary of Defense Scher testified to the Commission that:

*[d]efense ties [between China and Southeast Asia] remain relatively modest in comparison [to the United States], and China is long from becoming the security partner of choice to the region as a whole.*⁹⁶

For example, Chinese military exercises are small in scale and infrequent compared to those held between Southeast Asia and the United States. In the 2009 military exercises with Singapore, China only sent 61 PLA personnel. In comparison, at the most recent U.S.-Thailand multinational joint training exercise, a total of 14,000 soldiers from Thailand, the United States, Singapore, Indonesia, Japan, and South Korea participated.⁹⁷

Despite China's efforts to increase this security cooperation, two significant problems remain. Beijing's territorial claims in the South China Sea and its construction of a cascade of dams along the Mekong River have the potential to undermine the efforts and lead to conflict with Southeast Asia in the future.

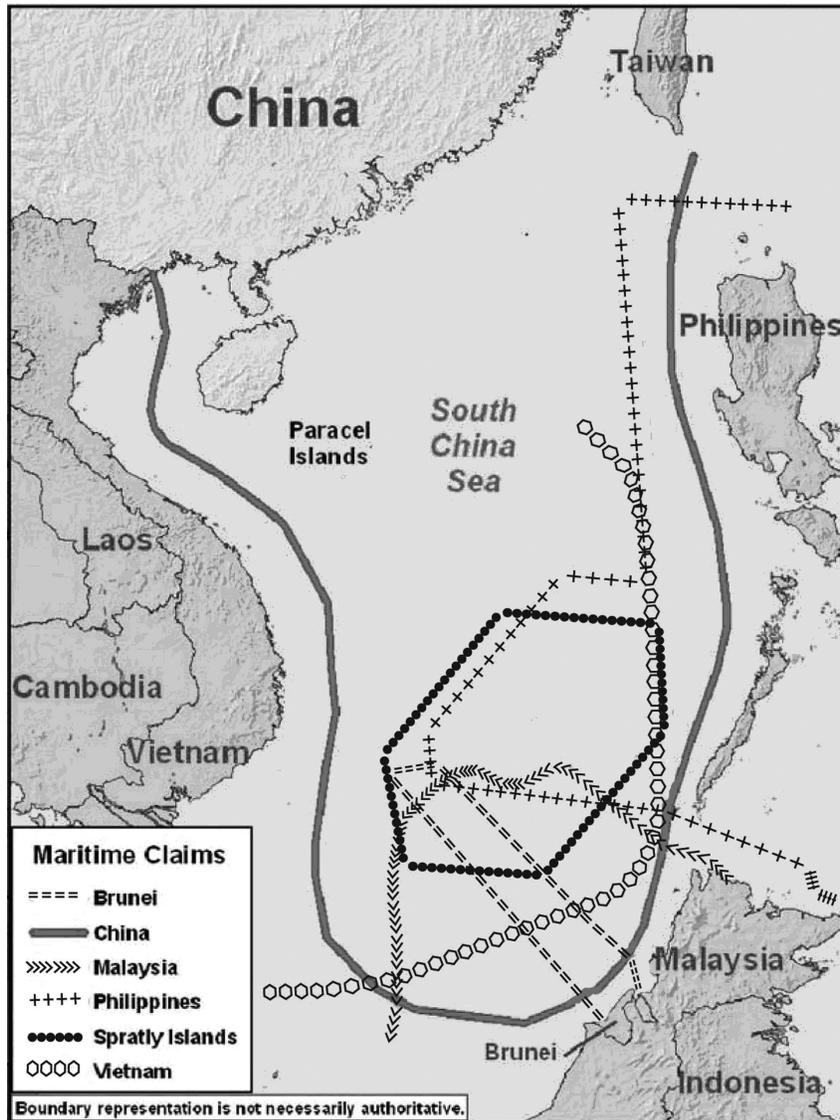
China's Claims in the South China Sea

A major source of growing tension between China and many countries in Southeast Asia is Beijing's sovereignty claims over much of the South China Sea. China claims "indisputable sovereignty" over almost the entire sea along with the Paracel and Spratly Island chains.⁹⁸ Vietnam, the Philippines, Malaysia, Taiwan, and Brunei dispute parts or all of China's claims (see figure 3 below). During the Commission's July 2010 trip to China, a representative of China's Ministry of Foreign Affairs stated that China's claims are based on hundreds of years of history, whereas the other claimants only started making their claims in the 1970s. Exacerbating this issue, Beijing recently labeled the South China Sea as part of its "core interest" of sovereignty, similar to what it labels Taiwan and Tibet.⁹⁹ According to an official statement given to the Commission by the Chinese embassy in Washington, DC, "The issue of [the] South China Sea involves the core interests of China [and] is very complicated and sensitive."¹⁰⁰ Dr. Scobell testified that China has elevated the importance of the South China Sea in recent years because of the country's growing energy needs. The

*For more on Chinese military exercises with foreign militaries, see the Commission's *2009 Report to Congress* (Washington, DC: U.S. Government Printing Office, November 2009), pp. 120–121.

South China Sea seabed possesses what Beijing believes to be vast amounts of untapped oil and gas deposits that could help the country meet its growing energy needs. Furthermore, as mentioned earlier, most of China's oil and gas imports traverse the South China Sea.¹⁰¹

Figure 3: South China Sea Territorial Claims



Source: Adapted from U.S. Department of Defense, *Annual Report to Congress: Military Power of the People's Republic of China, 2009*, (Washington, DC: 2009), p. 6. http://www.defense.gov/pubs/pdfs/China_Military_Power_Report_2009.pdf.

In recent years, China has grown more forceful in asserting its claims in the disputed waters. In 2002, ASEAN and China signed the legally nonbinding *Declaration on the Conduct of Parties in the South China Sea*, which was to pave the way toward confidence-building measures and eventual peaceful resolution of the disputes. Despite the agreement, since 2007, China has become more aggressive and has taken numerous steps to uphold what it considers its sovereignty and to prevent Southeast Asian countries from asserting their own claims in the sea. Chinese activities in the past several years include the following:

- *Pressuring foreign energy companies to halt operations*—In June 2007, BP announced that it was halting seismic work off the coast of southern Vietnam after China hinted that the company's actions were infringing on China's sovereignty.¹⁰² In addition, in July 2008, an ExxonMobil executive revealed that his company had come under Chinese pressure to scrap a preliminary oil exploration agreement with Vietnam.¹⁰³
- *Imposing fishing bans*—Since 1999, China has unilaterally imposed an annual fishing ban on parts of the South China Sea that are claimed by Vietnam, Malaysia, and the Philippines. In the past two years, China has increased patrols to enforce the ban and harass fishermen who do not abide by it.¹⁰⁴ In 2009, China detained 433 Vietnamese fishermen who were working in the disputed waters.¹⁰⁵
- *Naval modernization efforts*—China's growing military capabilities, which include advanced submarines, surface vessels, long-range aircraft, a future antiship ballistic missile capability, and a potential aircraft carrier will allow Beijing increasingly to project power in the South China Sea.¹⁰⁶ According to Clive Schofield and Ian Storey of The Jamestown Foundation, "China's emergence as Asia's pre-eminent naval power is potentially a game changer in the context of the territorial disputes and puts the other claimants, who cannot match the [PLA Navy's] increasing capabilities, at a disadvantage."¹⁰⁷ During the Commission's December 2009 trip to Vietnam, officials from the National Border Commission acknowledged that Southeast Asian countries are at a disadvantage, because even all of ASEAN members' navies combined could not resist Chinese forces in the event of a conflict over the sea. The Commission's 2009 Annual Report described how China's naval modernization efforts are leading to a maritime arms race in the region.*¹⁰⁸
- *Avoiding multilateral discussions about the South China Sea*—China has campaigned against having the South China Sea brought up on the ASEAN agenda or in any other international forum, preferring bilateral dispute resolution.¹⁰⁹ In July 2010, Chinese Foreign Minister Yang Jiechi stated,

* From 2005 to 2009, arms sales to Southeast Asia nearly doubled compared to the five preceding years. For example, in December 2009, Vietnam purchased six Kilo-class submarines and 12 Sukhoi Su-30 MK2 warplanes. In addition, Singapore recently purchased eight F-15E combat aircraft with advanced air-to-air and air-to-ground missiles from the United States, two LaFayette frigates from France, and 40 tanks from Germany.

“Turning the bilateral issue [of the South China Sea disputes] into an international, or multilateral one would only worsen the situation and add difficulties to solving the issue.”¹¹⁰ During the Commission’s July 2010 trip to Beijing, representatives from China’s Ministry of Foreign Affairs repeated this claim, noting that the issue of the South China Sea should not be brought up in ASEAN forums because the goal is cooperation, not confrontation. Furthermore, China protested vehemently when Vietnam and Malaysia submitted continental shelf claims to the United Nations.¹¹¹ In meetings with Vietnam’s Ministry of Foreign Affairs, officials told the Commission that China has refused to take part in multilateral discussions about the South China Sea and, as a consequence, Southeast Asian claimants have had a difficult time bonding together on the issue.

- *Military exercises in the South China Sea*—In late July 2010, China conducted naval exercises, involving numerous warships, submarines, and combat aircraft, in the South China Sea. Chinese state media reported that these exercises were the largest of its kind in the history of the PLA. During the exercises, Chen Bingde, member of the Central Military Commission and chief of the PLA General Staff Department, stated, “[China] must pay close attention to changes in [regional] situations and . . . prepare ourselves for military struggle.”¹¹² These exercises took place at the same time as a joint U.S.-South Korean drill in the Yellow Sea. It is unclear if the South China Sea exercise was planned in advance or was a response to the U.S.-South Korean drills.¹¹³
- *Planting a Chinese flag on South China Sea floor*—On August 26, 2010, a deep-sea submarine sponsored by China’s Ministry of Science and Technology planted a Chinese flag on the floor of a disputed area in the South China Sea. One of the engineers for the submarine stated, “[The planting of the flag] might provoke some countries, but we’ll be all right. The South China Sea belongs to China. Let’s see who dares to challenge that.”¹¹⁴

China's Recent Assertiveness in the East China Sea

In recent months, China also has been more assertive in stating its claims over the Diaoyu Islands (called the Senkaku Islands by Japan) in the East China Sea, an area disputed by China, Japan, and Taiwan. In September 2010, Japan detained a Chinese fishing boat captain after he allegedly rammed into two Japanese coast guard boats that were chasing him from the disputed territory. China responded to the detainment by temporarily suspending high-level exchanges with Tokyo, imposing a week-long unofficial ban on rare earth* exports to Japan, and imprisoning four Japanese citizens on charges of photographing military facilities in China.¹¹⁵ Several western media analysts have said that China's strong response to the incident was meant as a message to all countries with which it has maritime territorial disputes that Beijing is willing to go to great lengths to assert its sovereignty claims.¹¹⁶

China's claims to the South China Sea are a potential threat to U.S. interests in the region. As discussed in the Commission's 2009 Annual Report, in early March 2009 five Chinese vessels harassed the USNS *Impeccable* while it was conducting operations in international waters in the South China Sea. Former U.S. Director of National Intelligence Dennis Blair called the event the most serious military dispute between China and the United States since 2001.¹¹⁷ Although the United States has not taken an official position on any of the specific claims that China and the Southeast Asian countries have made, Deputy Assistant Secretary of Defense Scher testified to the Commission that:

*[The United States] strongly objects to behavior that puts at risk the safety of [U.S.] vessels and is a clear violation of international norms of behavior in ocean waters outside territorial seas . . . Further, [the United States] rejects any nation's attempt to place limits on the exercise of high seas freedoms within an [exclusive economic zone.]*¹¹⁸

In July 2010, at the ASEAN Regional Forum in Vietnam, U.S. Secretary of State Hillary Clinton asserted that the United States has a strategic interest in the South China Sea. She stated, "The United States, like every nation, has a national interest in freedom of navigation, open access to Asia's maritime commons, and respect for international law in the South China Sea." Secretary Clinton also stressed the importance of solving disputes multilaterally and said that the United States would be willing to "facilitate initiatives and confidence building measures" to establish a binding code of conduct for the six disputants.¹¹⁹ In response, China's Foreign Ministry announced that Secretary Clinton's remarks were "in effect an attack on China." An op-ed later published in the official news agency *China Daily* stated, "Clinton's attitude at a formal occasion like an ASEAN forum was obviously inappropriate and also

*Rare earth elements are a collection of 17 elements that are critical to civilian and military high-technology applications. Countries such as the United States and Japan depend on China for imports of rare earths because China produces 97 percent of the world's rare earth elements.

a provocation to China, aimed at sowing dissent between China and its Southeast Asian neighbors . . . What Washington is really seeking to do is to win over some Southeast Asian nations in its long-harbored attempt to contain China and balance Beijing's growing influence in the region."¹²⁰

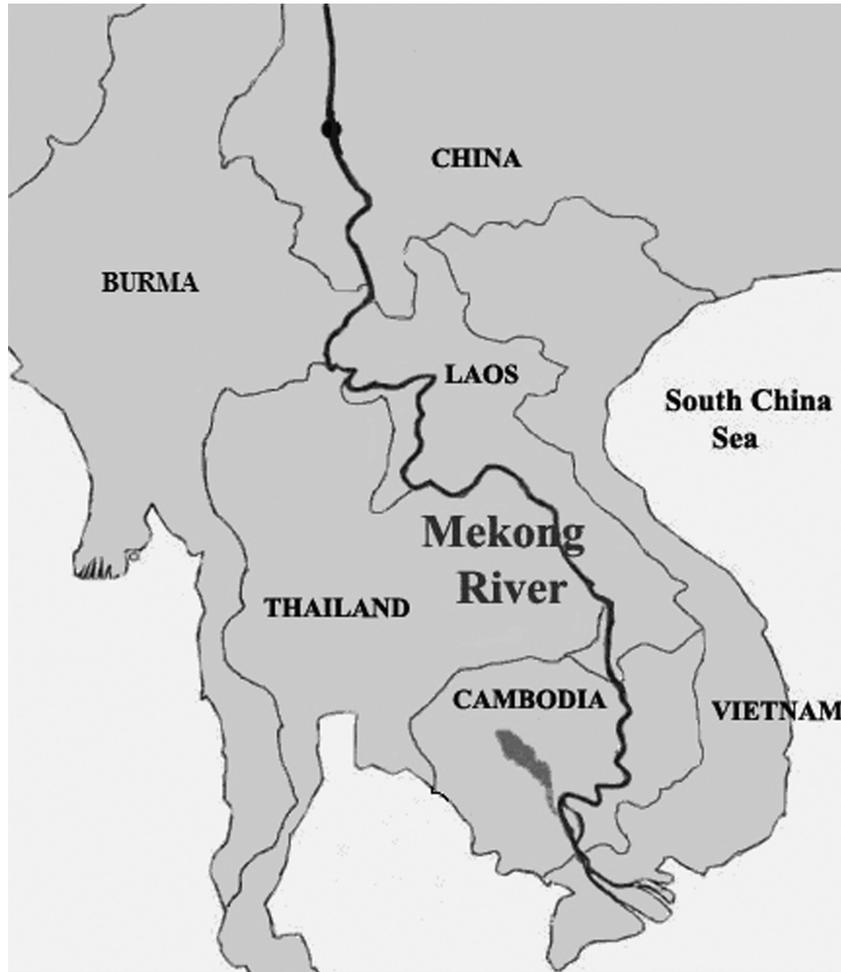
Chinese Construction of Dams along the Mekong River

A second major concern that has the potential to lead to conflict in Southeast Asia is China's construction of hydroelectric dams along the Mekong River, which has the possibility of creating large environmental and food security crises for the region in the near future. The Mekong River starts in the Tibetan Plateau in China and flows through Burma, Laos, Thailand, Cambodia, and Vietnam and has enormous hydropower potential (see figure 4 below).¹²¹ China has built seven or more hydropower dams in the province of Tibet and eight large, megasize dams in the province of Yunnan in order to exploit the river's energy and navigation potential. Thailand, Laos, and Cambodia are building a total of 13 dams along the Lower Mekong, several of which China is financing.¹²²

Regional experts have criticized the construction of these dams because of the potential security and environmental effects they will have on the countries in the region.¹²³ According to Richard Cronin, senior associate at the Henry L. Stimson Center:

*If completed as claimed, the mainstream dams in both the Upper Mekong in China and the Lower Mekong in Laos, Thailand and Cambodia will have an almost incalculable impact on human and food security and livelihoods in the whole Mekong Basin.*¹²⁴

The dams in Yunnan Province could allow China to regulate the supply of water flowing to the downstream countries. Thus, these countries would have to depend on China to release a sufficient amount of water to fully utilize the downstream dams. From an environmental perspective, the planned dams will likely disrupt natural flood waters that turn the lower river into vast temporary wetlands. These waters become the nursery for billions of fish that Southeast Asian nations depend on for food. In addition, the upstream dams have the ability to alter the river's flow to the extent that they will threaten rice fields that produce 40 percent of Vietnam's output.¹²⁵ Because Vietnam is the world's second-largest exporter of rice, this could have a dramatic effect on global food security.¹²⁶ Many Southeast Asians pointed to the infrastructure projects as a reason for a crippling drought in spring 2010, a claim that China denies.¹²⁷

Figure 4: Map of the Mekong River

Source: Map of Mekong River, *Yale Environment* 360, 2009. <http://e360.yale.edu/content/images/0616-mekong-map.html>.

The Mekong River Commission, which is comprised of Cambodia, Laos, Thailand, and Vietnam, is the only institution tasked with promoting cooperative water management along the Mekong. China is not a member and has provided little information on future dam construction and operation procedures.*¹²⁸ The commission held its first intergovernmental summit in April 2010, despite the organization's having existed for 15 years. A Chinese vice for-

*The U.S. State Department has partnered with the Mekong River Commission through its Lower Mekong Initiative. In 2009, the Lower Mekong Initiative spent \$7 million to build capacity to better manage resources and preserve biodiversity in the river. The initiative is seeking Congressional approval for an additional \$15 million for assistance related to improving food security in the Mekong countries.

eign minister attended the summit but denied that the proposed dams would have any negative impact on the Lower Mekong countries.*¹²⁹

Limits to Chinese Influence

Several analysts claim that China's growing presence in Southeast Asia will lead to Beijing's substantially increasing its influence in the region. However, many Southeast Asian nations have employed a nuanced strategy that tries to prevent this from occurring. According to Mr. Bower, "Southeast Asia's leaders understand that China's rise is economically beneficial, but they do not want to be dominated by China."¹³⁰ As a result, many Southeast Asian nations are employing a hedging strategy, which includes engagement with China while simultaneously incorporating other regional actors. A combination of Southeast Asian concern about China's presence and a concerted effort by Southeast Asian nations to incorporate other powers into the region attempts to limit Chinese influence in the region.

Regardless of China's "friendly neighbor" approach in recent years, Southeast Asian governments and citizens remain wary of China's growing engagement in the region. Historic tensions continue to exist between China and many Southeast Asian countries that still remember the Chinese support for communist insurgencies that rattled their countries. Until the early 1960s in Thailand and the late 1990s in Indonesia, both countries banned the teaching of Chinese and all expressions of Chinese culture.¹³¹ While these laws have changed, some underlying historic mistrust toward China remains. China's renewed forcefulness with respect to its claims in the South China Sea and its modernization of its military have not helped to allay these fears.¹³²

The presence of other extraregional actors in Southeast Asia has also precluded Beijing from gaining a preponderance of influence. ASEAN has pursued a policy of hedging against China's growing presence by courting actors such as the United States, Japan, the European Union, India, and Australia. During the Commission's December 2009 trip to Vietnam, officials from the Vietnamese Ministry of Foreign Affairs noted that ASEAN is using forums such as ASEAN+3 and the East Asian Summit to balance Chinese influence. The officials also strongly emphasized the importance of U.S. economic and security engagement with the region as a balance to China's presence. In July 2010, after Secretary of State Clinton participated in the ASEAN Regional Forum and announced that the United States would join the East Asian Summit, Singapore's foreign minister, George Yeo, stated, "The U.S. is demonstrating very clearly under the [Barack] Obama Administration its commitment to the region. . . . That commitment is cheered by everybody in ASEAN."¹³³ In addition, ASEAN has signed free trade agreements with Australia, New Zealand, Japan, South Korea, and India and is in the process of negotiating one with the European Union.¹³⁴ By signing trade agreements with external powers, ASEAN is able to integrate them economically into the region and

* Before the summit, China agreed to share hydrological data with the Mekong River Commission. However, it is unclear how much data China has provided since April.

give them a stake in maintaining stability in Southeast Asia. In terms of security cooperation, many Southeast Asian countries lean toward the United States while still reaping the advantages that come along with economic cooperation with China. According to Walter Lohman:

*The ASEAN states are playing a game whereby they take full advantage of near-term trends in China's economic development while hedging against their longer-term security concerns. The question is whether in the long-term they might outwit themselves and be so deep in the economic side that their political choices are constrained.*¹³⁵

The Trilateral Relationship among China, Vietnam, and the United States

During the Commission's trip to Vietnam in 2009 and in meetings with Vietnamese leaders in Washington, officials highlighted underlying tensions with China that have led Hanoi to engage the United States to hedge China's growing presence. Although Sino-Vietnamese relations have improved since the normalization of ties in 1991, a host of problems impact the relationship, including historic mistrust stemming from a border war in 1979. Bilateral trade has increased tenfold in the past decade, but Vietnam's growing trade deficit with China has aroused concerns among its leaders and producers of manufactured goods.*¹³⁶ Government representatives also were concerned about increasing tensions over the South China Sea and the potential instability that stems from China's building of dams along the Mekong River. All of these issues have led to wariness of China among Vietnamese citizens, an example of which was seen when strong opposition erupted toward China Aluminum Corporation's plans to mine bauxite in the central highlands of Vietnam in 2008. Hundreds of people, including environmentalists, scholars, economists, bloggers, religious leaders, National Assembly deputies, and famed war hero General Vo Nguyen Giap† all protested the mining project. Many argued that the mine would increase pollution and that the influx of Chinese workers would be a national security concern for Vietnam.‡¹³⁷

*The total trade volume has grown from \$1.4 billion in 2000 to \$13.2 billion in 2009, and today 19 percent of imports to Vietnam come from China. The Vietnamese trade balance with China has changed from a \$14 million trade surplus in 2000 to a \$9.6 billion trade deficit in 2009.

†General Vo Nguyen Giap was the principal commander during Vietnam's First Indochina War against French colonial rule from 1946 to 1954, and the Vietnam War against the United States from 1960 to 1975. General Giap continues to be a revered figure in Vietnam.

‡China Aluminum Corporation was allowed to continue with its project, but the National Assembly conducts regular reviews of how the project is being implemented.

**The Trilateral Relationship among China, Vietnam, and
the United States—Continued**

Several analysts assert that as a means of balancing increased Chinese presence in the region, particularly its increasing role in the South China Sea, Vietnam has sought to improve ties with the United States.¹³⁸ In August 2010, two U.S. naval vessels made port calls in Vietnam, and U.S. Defense Secretary Robert Gates announced that the two countries will hold their first military-to-military talks at the end of the year.¹³⁹ In the same month, the U.S. State Department held talks with Hanoi on sharing civilian nuclear technology and fuel.¹⁴⁰ According to Carlyle Thayer, a Vietnam expert at the Australian Defense Force Academy, “Quite simply, these are not too subtle signals that Vietnam wants the United States to stay engaged in the region to balance China.”¹⁴¹ Nevertheless, Vietnam believes it must continue to engage China and is balancing the economic benefits of its relationship with China and the strategic benefits of its relationship with the United States.

Implications for the United States

Despite challenges, China’s presence in Southeast Asia will continue to grow and therefore have an impact on U.S. interests in the region, which include promoting regional stability, preventing terrorism, creating a favorable economic environment for U.S. exports and investment, and maintaining freedom of navigation. Deputy Assistant Secretary of Defense Scher testified that the Obama Administration does not view China’s presence as a “zero-sum game” or a fundamental threat to these U.S. interests. In fact, China’s presence can help to deliver international public goods, particularly in the areas of counterpiracy, nonproliferation, and humanitarian assistance.¹⁴²

Nevertheless, in some areas, China’s actions in the region have directly challenged U.S. interests. In particular, China’s assertiveness in the South China Sea could seriously affect U.S. economic and national security goals in Southeast Asia. More broadly, however, China’s increasing presence in the region could weaken the U.S.’s ability to exert influence throughout Southeast Asia. According to Dr. Frost:

The risk is not that China will push the United States out of Asia, now or in the future. The main risk is that over time, the U.S. voice in the region will be gradually drained of influence relative to China’s. This challenge stems from the contrast between China’s galloping economic performance and America’s current domestic and international headaches . . . Although the United States is indeed a ‘resident power’ . . . it must never take its presence in Asia for granted.¹⁴³

Conclusions

- China's political, economic, energy, and security interactions with Southeast Asia have increased significantly in recent years and are expected to increase in the future.
- Tensions in the South China Sea and East China Sea, dam construction along the Mekong River, and Southeast Asian historical mistrust may limit China's influence in the region.
- Many Southeast Asian nations are looking to increase their relationships with the United States in order to hedge against China's growing presence in the region.
- China's assertiveness in the South China Sea constitutes a potential threat to U.S. interests, including the freedom of navigation.

SECTION 2: TAIWAN

Introduction

Through a combination of hearings, trips to China and Taiwan, and research over the past year, the Commission learned more about how China and Taiwan further improved their overall bilateral relationship, continuing a trend that began with the May 2008 inauguration of Taiwan President Ma Ying-jeou. Describing this trend in its 2009 *Report to Congress*, the Commission stated that:

Since Ma Ying-jeou was inaugurated as president of Taiwan in May 2008, many developments have occurred in the relationship between Taiwan and the People's Republic of China (PRC). Almost immediately after President Ma took office, official meetings between Taiwan and the mainland began, including high-level interactions. During these meetings, the two sides signed several agreements—primarily economic in nature—and made progress toward a free trade agreement. However, despite the apparent progress in cross-Strait relations on some fronts, the PRC has shown no signs of abating its buildup of military capacities vis-à-vis Taiwan, increasing the disparity between China and Taiwan's respective military capabilities.¹⁴⁴

Since then, these trends in the cross-Strait relationship have continued. Taiwan and China deepened their economic integration through expanded bilateral trade and investment. They signed an historic trade liberalization pact, the Economic Cooperation Framework Agreement. Diplomatic relations across the Taiwan Strait improved as well. Taiwan and China conducted negotiations and held official visits on a near-regular basis. They signed several agreements and even opened government offices on opposite sides of the Taiwan Strait. However, juxtaposed against progress in the economic and diplomatic cross-Strait relationship is a noticeable lack of progress in the cross-Strait security situation. China's continued military buildup against Taiwan has resulted in a military balance that favors the mainland, especially in regard to Taiwan's air defense capabilities. This section of the Commission's Report will address recent cross-Strait economic, diplomatic, and security developments over the past year. In addition, in accordance with its Congressional mandate, this section will also describe recent developments in the U.S.-Taiwan relationship.

The Economic Cooperation Framework Agreement and Deepening Cross-Strait Economic Integration

Over the past year, China and Taiwan have continued to make significant progress in integrating their two economies. China is

now Taiwan's largest trading partner, with cross-Strait trade in 2009 totaling almost \$110 billion. In 2009, over 40 percent of Taiwan's exports went to the mainland, almost four times as much as the next-largest export destination, the United States (see table 1 below). In 2009, Taiwan imported from China (including Hong Kong) \$25.5 billion worth of goods, up from \$19.1 billion in 2004.¹⁴⁵ Similarly, Taiwan exported to China (including Hong Kong) \$83.7 billion in 2009, up from \$69.3 billion in 2004.¹⁴⁶ By way of comparison, in 2009 the United States imported from China \$296.4 billion worth of goods and exported \$69.6 billion. In addition, over 70 percent (\$7.14 billion) of Taiwan's outbound investment in 2009 went to the mainland.¹⁴⁷ The two sides also signed several economic-related agreements, the most important of which is the Economic Cooperation Framework Agreement.

Table 1: Taiwan's Top Five Trade Partners (2009)

Country	Percentage	\$ Billions
Exports from Taiwan		
Mainland China (including Hong Kong)	41.09%	\$83.7
United States*	11.56%	\$23.5
Japan	7.12%	\$14.5
Singapore	4.23%	\$8.6
South Korea	3.58%	\$7.3
Imports to Taiwan		
Japan	20.77%	\$36.2
Mainland China (including Hong Kong)	14.65%	\$25.5
United States	10.41%	\$18.2
South Korea	6.03%	\$10.5
Saudi Arabia	4.97%	\$8.7

Source: Adapted from Government Information Office of Taiwan, "The Republic of China at a Glance 2010: Economy." <http://www.gio.gov.tw/taiwan-website/5-gp/glance/ch7.htm#top>.

On June 29, 2010, Taiwan's Straits Exchange Foundation and China's Association for Relations Across the Taiwan Straits signed the Economic Cooperation Framework Agreement, a free trade agreement that seeks to liberalize trade between China and Taiwan.† The agreement came into effect on September 12, 2010, after Taiwan's parliament ratified it on August 17, despite members from Taiwan's opposition party, the Democratic Progressive Party, boycotting the vote.¹⁴⁸ With this agreement, the two sides are to reduce and eventually eliminate tariffs on select imports over a

*The values provided by the government of Taiwan differ from U.S. government-provided trade figures. According to the U.S. Bureau of Economic Analysis, in 2009 the United States imported from Taiwan \$41 billion in goods and services, while it exported to Taiwan \$29 billion. U.S. Bureau of Economic Analysis, "U.S. International Transactions, by Area—Taiwan" (Washington, DC: U.S. Department of Commerce, June 17, 2010). http://www.bea.gov/international/bp_web/simple.cfm?anon=71&table_id=10&area_id=40.

†Taipei and Beijing do not have an official bilateral relationship. Instead, cross-Strait negotiations are held under the auspices of two quasi-official organizations. Representing Taiwan is the Straits Exchange Foundation, "a private intermediary body" entrusted to act on behalf of the Taiwan government in cross-Strait matters. The corresponding body in China is the Association for Relations Across the Taiwan Straits. Association for the Relations Across the Taiwan Straits, "Haixia Liang'an Guanxi Xiehui Jianjie" (A Brief Introduction to the Association for the Relations Across the Taiwan Straits), April 17, 2010. http://www.arats.com.cn/bhjs/200904/t20090417_871060.htm; and Straits Exchange Foundation, "Establishment and History of the SEF [Straits Exchange Foundation]." <http://www.sef.org.tw/ct.asp?xItem=48843&CtNode=3987&mp=300>.

three-year period.¹⁴⁹ The agreement's "early harvest" items, those items slated for immediate tariff reduction, include both goods and services. For goods, China will reduce tariffs on 539 items imported from Taiwan, about 16.1 percent of Taiwan's yearly exports to the mainland. In return, Taiwan will reduce tariffs on 267 Chinese imports, about 10.5 percent of China's exports to the island.* For services, Taiwan will gain access to 11 Chinese markets, while China will gain access to seven.†¹⁵⁰ Over the next few years, Taiwan and China will continue to develop and refine the details of the agreement.¹⁵¹

According to initial reports, the economic benefits favor Taiwan more than China. Under the agreement, China is to eliminate tariffs on almost twice as many goods as Taiwan. The affected Taiwan exports are also larger in value: The value of the affected Chinese exports is \$2.86 billion, whereas the value of affected Taiwan exports is \$13.8 billion.¹⁵² According to Taiwan's Mainland Affairs Council, the Economic Cooperation Framework Agreement will expand the island's economic growth between 1.65 and 1.72 percent and create between 257,000 and 263,000 jobs.¹⁵³ In addition, the Ma Administration maintains that signing this agreement may encourage Beijing to acquiesce to Taiwan's signing other free trade agreements with regional trade partners.¹⁵⁴ Soon after Taiwan and China signed the agreement, both Singapore and the Philippines expressed interest in negotiating a free trade agreement with Taiwan.¹⁵⁵ However, during the Commission's July 2010 trip to China, Commissioners heard from a representative of China's Ministry of Foreign Affairs that Beijing continues strongly to oppose Taiwan signing free trade agreements with other nations. The Economic Cooperation Framework Agreement could also lead to additional foreign investment on the island as foreign firms attempt to enter Chinese markets through reduced Taiwan tariffs.¹⁵⁶ Finally, the agreement prohibits Chinese agricultural exports or the movement of Chinese labor to Taiwan for work, both concerns raised by Taiwan negotiators early in the negotiations.¹⁵⁷

Several witnesses testified to the Commission that the minimal amount of economic benefit for China may signal that Beijing is willing to let Taiwan gain the better part of the deal in order to advance China's political agenda of unification with Taiwan.¹⁵⁸ David B. Shear, deputy assistant secretary of State for East Asian and Pacific Affairs, noted to the Commission how China's Premier Wen Jiabao hinted in February 2010 that China was willing to allow Taiwan to "benefit more."¹⁵⁹ According to Merritt T. Cooke,

*Taiwan's 539 export items are located in six industries: agricultural, machinery, petrochemical, textile, transportation equipment, and "other." China's 267 export items are located in the five industries of machinery, petrochemical, textile, transportation equipment, and "other." Taiwan Industry Development Bureau, Ministry of Economic Affairs, "Early Harvest List for Trade in Goods and Tariff Reduction Arrangements," July 5, 2010. <http://www.mac.gov.tw/ct.asp?xItem=85851&ctNode=5921&mp=3>.

†The 11 service areas on the mainland that are open to Taiwan firms include banking, insurance, professional, computer, data processing, research, conference, professional design, audiovisual, hospitals, and air transportation. China will acquire access to seven Taiwan service areas: research, conference, exhibition, special product design, sports, entertainment, and computer reservation services. *China Trade Extra*, "Taiwan, China Ink Economic Cooperation Deal, May Spark U.S. Investment," June 30, 2010; and Alex Pevzner and Ting-I Tsai, "China, Taiwan sign trade pact," *Wall Street Journal*, June 29, 2010. <http://online.wsj.com/article/SB10001424052748704103904575336092449134062.html>.

founder of GC3 Strategy, Inc., “Beijing is clearly hoping, in the short term, to create economic dependency.”¹⁶⁰

Not everyone in Taiwan supports this agreement. According to a survey that the Election Study Center of Taiwan’s National Chengchi University conducted at the end of April 2010, a third of the respondents disapproved of the Economic Cooperation Framework Agreement.¹⁶¹ Detractors of the agreement, led by the opposition party, the Democratic Progressive Party, fear it will make the island’s economy too reliant upon China’s significantly larger economy and, by extension, Taiwan will become overly dependent upon China. In addition, they maintain that this agreement will open the floodgates to cheap Chinese imports, thus harming Taiwan’s local economy.¹⁶² Finally, as representatives from the Democratic Progressive Party told the Commission in December 2009, there is a high level of distrust among Taiwan’s populace for Beijing’s ultimate intentions. This distrust was fueled in part by the lack of transparency concerning this agreement during the early negotiations between China and Taiwan.¹⁶³

In addition to the Economic Framework Cooperation Agreement, Taiwan and China also agreed on three other economic-related accords in 2010:

- *Direct investment in Taiwan financial firms:* In March 2010, Taipei announced that, for the first time since 1949, it would allow Chinese financial firms to invest directly in Taiwan lenders, brokerages, and insurers. The agreement does not provide Chinese firms complete access to Taiwan firms, however. Chinese investing organizations first will have to receive Taiwan government approval, and investments will be limited in size.*¹⁶⁴
- *Intellectual property rights protection and cooperation:* While signing the Economic Cooperation Framework Agreement, Taipei and Beijing also agreed on an intellectual property rights protection process. Although not granting full patent rights, this agreement creates a mechanism for resolving cross-Strait intellectual property rights disputes.¹⁶⁵ In addition, Taiwan and China pledged to coordinate the enforcement of bilateral intellectual property rights.¹⁶⁶
- *Joint promotion of telecommunications technologies:* Signed in June 2010, this agreement aims to create bilateral mobile standards and cooperation on key technologies as well as to promote investment in each other’s telecommunications companies. According to Shyu Jyuo-min, president of Taiwan’s Industrial Technology Research Institute, “[i]nvesting together in new telecommunications technologies and services will boost the global competitiveness of both sides in [fourth generation] wireless broadband, cloud computing, wireless cities and more.”¹⁶⁷

*According to the regulations, a single Chinese financial institution can purchase up to 5 percent of a Taiwan bank, while Taiwan institutions can purchase up to 20 percent of a mainland bank. Crystal Hsu, “Taiwan Approves China Investment,” *Wall Street Journal*, March 11, 2010. <http://online.wsj.com/article/SB10001424052748703625304575116462598849930.html>; Economist, “China and Taiwan: Branching In,” July 1, 2010. http://www.economist.com/node/16485610?story_id=16485610.

Improving Cross-Strait Diplomatic Relations

Although less developed in comparison to their economic ties, Taiwan and China's diplomatic relationship has continued to improve, building upon a trend that began with President Ma's May 2008 inauguration. According to Deputy Assistant Secretary of State Shear, "We have witnessed remarkable progress in cross-Strait relations in the nearly two years since Taiwan President Ma Ying-jeou took office."¹⁶⁸ This progress has eliminated the "corrosive political dynamic" that dominated cross-Strait interactions from the early 1990s to 2008.¹⁶⁹ Improvements in the diplomatic relationship are evident in regular cross-Strait negotiations, official visits, and even the opening of official government offices on opposite sides of the Taiwan Strait.

Cross-Strait negotiations continue to occur on a near-regular basis. According to Shelley Rigger, Brown professor of Political Science at Davidson College, "[h]igh-level visits have become routine, with the heads of the two sides' quasi-official negotiating bodies . . . exchanging regular visits and engaging in substantive negotiations during those visits."¹⁷⁰ The main medium of interaction is the relationship between Taiwan's Straits Exchange Foundation and China's Association for the Relations Across the Taiwan Straits. In late December 2009 and June 2010, they held their fourth and fifth meeting, respectively.*¹⁷¹ During the fourth meeting, they signed agreements on fishing vessel crew cooperation; agricultural quarantine inspection; and industrial product standards, inspection, and certification.¹⁷² These two groups have also met several times in their capacities as titular heads of the negotiations for the Economic Cooperation Framework Agreement.¹⁷³

Numerous visits and meetings have also occurred between Chinese and Taiwan government officials and representatives over the past year. At the highest level, Hu Jintao, China's president and Communist Party general secretary, met several times with Taiwan representatives, such as Lien Chan, former Taiwan vice president (November 2009 and April 2010); † James Soong, chairman of Taiwan's People's First Party (April 2010); and Wu Poh-hsiung, ‡ former chairman of the Chinese Nationalist Party (April and July 2010).¹⁷⁴ In addition to meetings at the senior-most level, frequent "purchasing delegations" from Chinese provincial and municipal governments have visited Taiwan over the past year. These delegations, ranging from several hundred to several thousand people, usually announce large purchase orders during their trips.¹⁷⁵ To date, the largest such delegation was the November 2009 Jiangsu Province delegation, comprising over 4,000 individuals and placing orders in excess of \$3 billion.¹⁷⁶ Annex A at the end of this section

*The first three meetings of the Straits Exchange Foundation and the Association for the Relations Across the Taiwan Straits were held in June 2008, November 2008, and April 2009. U.S.-China Economic and Security Review Commission, *2009 Annual Report to Congress* (Washington, DC: U.S. Government Printing Office, November 2009), pp. 233-34.

†This is their second meeting, having met during the 2008 Asia-Pacific Economic Cooperation meeting in Peru. U.S.-China Economic and Security Review Commission, *2009 Report to Congress* (Washington, DC: U.S. Government Printing Office, November 2009), p. 233.

‡President Hu first met Wu Poh-hsiung in May 2008, when Mr. Wu was chairman of the Chinese Nationalist Party. Du Duodong, "Hu Jintao Meets KMT [Kuomintang] Chairman Wu Poh-hsiung," *Xinhua*, May 28, 2008. http://news.xinhuanet.com/english/2008-05/28/content_8269806.htm.

provides a more comprehensive list of cross-Strait meetings and interactions over the past year.

In another sign of improving diplomatic relations across the Taiwan Strait, in May 2010, China and Taiwan opened tourism offices in each other's capitals. Opened to promote cross-Strait tourism and handle problems among cross-Strait visitors,¹⁷⁷ these offices represent the first government offices established on opposite sides of the Taiwan Strait since ties were severed in 1949.* According to a spokesman for Taiwan's Ministry of Transportation and Communication, which controls Taiwan's Tourism Bureau, "This move is symbolic of the interactivity [sic] between the two sides. The office has an official role, so it should facilitate two-way communication."¹⁷⁸

Cross-Strait Political Situation

Despite the deepening economic integration and warming of cross-Strait diplomatic relations, there are few signs of any deeper political integration. During the Commission's 2009 trip to Taiwan, President Ma explained how Taipei was currently discussing with Beijing only economic issues and not political or military topics. In July 2010, the minister of Taiwan's Government Information Office reiterated this point, publicly stating that "[t]here is still a long way to go and there is no timetable" for cross-Strait political negotiations.¹⁷⁹ Overtures from Beijing for future political negotiations appear to be one-sided, as demonstrated by government and non-government officials in Taiwan quickly distancing themselves from a Beijing academic's July 2010 comment on peace negotiations being the next step in bilateral talks.¹⁸⁰ Several witnesses also told Commissioners how there is little support among the Taiwan populace for further political negotiations.¹⁸¹ "The Taiwan public . . . is cautious of moves that could be seen to compromise Taiwan's sovereignty," said Deputy Assistant Secretary of State Shear.¹⁸² Public opinion polls continue to demonstrate that almost 90 percent of the populace supports the current situation of de facto independence (see table 2 below). Randall G. Schriver, president and chief executive officer of the Project 2049 Institute, elaborated on this point, telling Commissioners how:

When asked what arrangement people would support for Taiwan in the absence of a military threat from China, the numbers supporting independence have been steadily growing, and those supporting eventual unification have been dropping. When people are allowed to answer 'status quo now' but something else later, according to the Mainland Affairs Council in Taiwan, those believing that independence should come after the status quo in Taiwan is on the rise, while those supporting unification after the status quo is on the decline.¹⁸³

* In order to overcome the issue of actually having official government employees run these offices, both offices are staffed by government officials temporarily assigned to nonofficial billets. Cindy Sui, "Taiwan Opens First Office in China to Promote Tourism," BBC News, May 4, 2010. <http://news.bbc.co.uk/2/hi/asia-pacific/8658886.stm>; and David G. Brown, "China-Taiwan Relations: Economic Cooperation Framework Agreement Signed," *Comparative Connections* 12: 2 (July 2010): 78.

Table 2: Taiwan Public's View on Cross-Strait Relations (April–May 2010)

Unification as soon as possible	1.5%	
Independence as soon as possible	14.9%	
Maintain the status quo and unification later	8.6%	88.1%
Maintain the status quo and independence later	38.7%	
Maintain the status quo and decide on independence or status quo later	25%	
Maintain the status quo indefinitely	15.8%	
No opinion	5.6%	

Source: Election Study Center, "Percentage Distribution of the Routine Questionnaire Survey on 'The Public's View on Current Cross-Strait Relations'" (Taipei: National Chengchi University, May 7, 2010), p. 2. <http://www.mac.gov.tw/public/Attachment/05271558676.pdf>.

Scott L. Kastner, associate professor of International Relations at the University of Maryland, attributed these changing views to a new, emerging self-identity on the island, stating that in recent years "the percentage of Taiwan citizens who self-identify as Taiwanese rather than as Chinese or both Chinese and Taiwanese has continued to grow."¹⁸⁴ Therefore, improvements in the Taiwan-China relationship should not automatically be seen "as an inexorable and irreversible movement through economic integration, political reconciliation, and unification," testified Richard C. Bush, III, director of the Center for Northeast Asian Policy Studies at The Brookings Institution.¹⁸⁵

Cross-Strait Military Situation Increasingly Favors China

Despite the improvements in the economic and diplomatic aspects of the cross-Strait relationship over the past year, Taiwan's military situation vis-à-vis China continues to deteriorate. As the Commission's previous reports have discussed, China has greatly improved its military capabilities across from Taiwan. For example, as discussed in chapter 2, section 1, of this Report, China currently has over 1,100 conventionally armed short-range ballistic missiles deployed opposite Taiwan. China's military modernization efforts and military buildup across the Taiwan Strait have resulted in "a cross-Strait military balance that is tilted increasingly in China's favor," testified David A. Shlapak, senior international policy analyst at the RAND Corporation.¹⁸⁶ In addition, Beijing has so far refused to renounce the use of force against Taiwan, keeping the threat of military action in reserve should cross-Strait relations move in a direction counter to Beijing's desires. This combination of improved coercive means, coupled with economic and diplomatic incentives (described above), provides China with what Mr. Schriver labeled a "carrot and stick method" to confront Taiwan.¹⁸⁷ According to Michael Schiffer, deputy assistant secretary of Defense for Asian and Pacific Security Affairs:

It appears that Beijing's long-term strategy is to use political, diplomatic, economic, and cultural levers to pursue unification with Taiwan, while building a credible military threat to attack the island if events are moving in what Beijing sees as the wrong direction. Beijing appears pre-

*pared to defer the use of force for as long as it believes long-term unification remains possible. However, it firmly believes that a credible threat is essential to maintain conditions for political progress, and in this regard we continue to see the military balance as shifting in Beijing's favor.*¹⁸⁸

The Commission has described previously the overall cross-Strait military situation in its reports dating back to 2001. This subsection will focus exclusively on Taiwan's ability to defend the island in the event of an air and missile attack from the mainland.

Taiwan's ability to achieve air superiority* over its airspace continued to decrease over the past year. Until relatively recently, "Taiwan [had] long held the qualitative edge over China in air combat capability."¹⁸⁹ However, as Deputy Assistant Secretary of Defense Schiffer remarked to the Commission this year, "I do not think there is any question that Taiwan faces a challenge to its dominance of its airspace."¹⁹⁰ According to a January 2010 U.S. Defense Intelligence Agency report:

*In recent years, the Chinese People's Liberation Army has increased the quantity and sophistication of its ballistic and cruise missiles and fighter aircraft opposite Taiwan, which has diminished Taiwan's ability to deny PRC efforts to attain air superiority in a conflict.*¹⁹¹

As the Commission's *2009 Report to Congress* described, in the event of a conflict between Taiwan and the mainland, one possible scenario is for China's military, the People's Liberation Army (PLA), to use its expanding arsenal of conventional ballistic and land-attack cruise missiles to strike Taiwan.¹⁹² An early target would be Taiwan's air bases, and in particular the runways, with the intent of denying Taiwan's air force the ability to acquire and maintain air superiority during the remainder of the conflict.¹⁹³ Although Taiwan possesses several missile defense systems (see table 3 below), China's large, and increasingly capable, missile arsenal would likely overwhelm Taiwan's limited missile defense capabilities.¹⁹⁴ Armed with crater-making submunitions,† Chinese conventional ballistic and cruise missiles would render Taiwan military runways unusable until repaired. In addition, this initial salvo would likely destroy any unprotected aircraft parked nearby. China would only need to use a small percentage of its short-range ballistic missiles to knock out a runway temporarily. According to research by the RAND Corporation, between 90 and 250 missiles, depending upon accuracy, "would suffice to cut every runway at Taiwan's 10 main fighter operating bases and damage or destroy virtually every unsheltered aircraft located on them."¹⁹⁵

*For this Report, air superiority is defined as "[t]hat degree of dominance in the air battle of one force over another that permits the conduct of operations by the former and its related land, sea, and air forces at a given time and place without prohibitive interference by the opposing force." U.S. Joint Chiefs of Staff, *Dictionary of Military and Associated Terms* (Washington, DC: Department of Defense, August 19, 2009), p. 102.

†Submunitions are small explosives contained within larger weapons and are designed to be dispersed over a large area prior to impact.

Table 3: Taiwan's Current Inventory of Air Defense Systems

Type	Number of batteries	Missile count	Mobile?	Source
<i>Long and Medium Range</i>				
Tien Kung (Sky Bow) I and II	6	500	Some	Taiwan
Patriot PAC-2	3	200	Yes	United States
I-HAWK	13	375		United States
<i>Short Range (30 km or less)</i>				
M-48 Chapparral	37	727	Yes	United States
Antelope	1 (6 planned)	Unknown	Yes	Taiwan
Avenger	74	1,299	Yes	United States
Stinger		728	man-portable	United States
RBS 70		20	man-portable	Sweden
<i>Advanced air-to-air missiles</i>				
AIM-120 (AMRAAM)	N/A	418	Yes (F-16 fired)	United States
<i>Future plans</i>				
Tien Kung III	initial operational capability: 2012			
Patriot PAC-3	initial operational capability: 2014			

Sources: Defense Intelligence Agency, *Taiwan Air Defense Status Assessment* (Washington, DC: Bolling Air Force Base, January 21, 2010); and Shirley A. Kan, *Taiwan: Major U.S. Arms Sales Since 1990* (Washington, DC: Congressional Research Service, July 2, 2010), pp. 62–63.

ERR14 Destroying Taiwan's runways, even temporarily, would seriously handicap Taiwan's fighter fleet. According to the Defense Intelligence Agency, Taiwan's aircraft "cannot be used effectively in conflict without adequate airfield protection, especially runways."¹⁹⁶ While the Taiwan military does have the ability to repair damaged runways, it "would face great difficulty repairing the sheer number of potholes that could be created by an attack like this."¹⁹⁷ Mr. Shlapak described to the Commission what the effects of this possible first phase might look like:

Analysis suggests that China—using perhaps one-fourth of its [short-range ballistic missile] force—could potentially deliver a staggering blow to the [Taiwan Air Force] in the first minutes and hours of any cross-Strait conflict by attacking the runways on each base and striking unsheltered aircraft parked outside on the ramps.¹⁹⁸

After this initial phase, the PLA Air Force would likely target any aircraft that survived the initial onslaught.¹⁹⁹ Because many, if not all, of the island's military runways would be unusable at this time, Taiwan's air force would be limited in its ability to scramble its fighters to defend its airspace. This in turn would create a permissible environment for the PLA Air Force to use its growing fleet of air-to-ground strike aircraft, armed with increasing numbers of precision-guided munitions, to destroy both shelters and aircraft.²⁰⁰ At this stage, without outside military support for Taiwan, the PLA would possess air superiority over the island and be able to conduct attacks on "a wide range of military and economic targets" with minimal losses.²⁰¹

Taiwan's ability to maintain air superiority is further handicapped by increasing difficulties in maintaining its air fleet. According to the Defense Intelligence Agency, "[a]lthough Taiwan has

nearly 400 combat aircraft in service, far fewer of these are operationally capable.”²⁰² Much of Taiwan’s foreign purchased fighter fleet (over 70 percent of its fighters) suffers from a lack of spare parts, since most countries have refused to sell Taiwan military weapons and equipment.²⁰³ In addition, Taiwan’s F-5 E/F fighters, representing more than a quarter of its air fleet, are a 1960s-era aircraft and are nearing the end of their useful service life.²⁰⁴ These two factors combine to reduce significantly the availability rates for Taiwan’s fighters. In order to upgrade its fighter fleet, Taiwan is currently requesting that the United States sell it 66 F-16 C/D fighters* (for more on U.S. arms sales to Taiwan, see the following subsection). Taipei is also attempting to upgrade its indigenous F-CK-1 fighters and may seek to do the same with its F-16 A/B fighters.²⁰⁵

Table 4: Taiwan’s Fighter Fleet

<i>Type</i>	<i>Number</i>	<i>Availability Rates (percentage)</i>
F-16 A/B	145	70%
F-CK-1 A/B	126	80%
Mirage 2000	56	79%
F-5 E/F	60	26%

Sources: Compiled by USCC staff from Defense Intelligence Agency, *Taiwan Air Defense Status Assessment* (Washington, DC: Bolling Air Force Base, January 21, 2010), pp. 3, 6; U.S.-Taiwan Business Council, *The Balance of Air Power in the Taiwan Strait* (Arlington: VA: May 2010), p. 3; and U.S.-Taiwan Business Council, *Defense and Security Report First Quarter* (Arlington, VA: April 1, 2010), p. 11.

Taiwan Defense Reforms

In the face of China’s military buildup, Taiwan has taken several steps in an attempt to improve its ability to defend itself. According to Taiwan’s defense minister, defense reforms are necessary in order to build “a ‘small but smart and strong’ modern force capable of deterring potential military aggressors from taking reckless actions and serving as a solid buttress for the government in cross-strait negotiations.”²⁰⁶ In his testimony to the Commission, Albert S. Willner, director of China Security Affairs at CNA, described some of Taiwan’s recent steps to reforming and improving its military, such as:

- Streamlining Taiwan’s defense organizations;
- Reducing the size of the armed forces from 275,000 to 215,000;
- Reducing the number of senior-level officers;
- Increasing the number of civilians working in the Ministry of Defense;
- Replacing Taiwan’s conscript-based military with a volunteer military;
- Improving the planning and development of armaments;
- Strengthening professional military education; and
- Improving defense expenditures.²⁰⁷

*The F-16 C/D is a more advanced version of the F-16 A/B that has improved cockpit control and display technology, as well as built-in structural and wiring architecture, allowing for the C/D version to better perform precision strike, night attack, and beyond-visual-range interception missions. The designators “A” and “C” are for single-seat aircraft, while “B” and “D” are for double-seat aircraft.

However, potential challenges exist that could derail Taiwan from ultimately achieving these goals. According to Dr. Willner, these challenges include a lack of political will for costly defense expenditures, disagreements between the civilian and military leadership over policies, bureaucratic impediments to change within the military, difficulties in recruiting and retention, and infighting among the services over new roles and responsibilities.²⁰⁸

Recent Developments in the U.S.-Taiwan Relationship

As the Commission's *2008 Report to Congress* stated, Taiwan is an important U.S. partner in East Asia. A shared value for democracy, a close economic relationship, historical and cultural ties, and a similar desire for stable cross-Strait relations make the United States and Taiwan natural partners in the region.²⁰⁹ The remainder of this subsection will discuss recent developments in the U.S.-Taiwan relationship. In particular, it will address U.S.-Taiwan trade issues, recent U.S. arms sales to Taiwan, and outstanding bilateral agreements.

U.S.-Taiwan trade issues

Overall, the United States and Taiwan enjoy a strong economic relationship. The United States is currently Taiwan's third-largest trading partner behind China and Japan, while Taiwan is the U.S.'s 15th largest. Although down in 2009 as a result of the global economic downturn, overall U.S.-Taiwan trade had been increasing in recent years (see table 5 below). Taiwan enjoys a trade surplus with the United States. In 2009, the U.S. trade deficit with Taiwan was \$12.2 billion.²¹⁰ In 2009, the United States mainly exported to Taiwan machinery for manufacturing electronic integrated circuits, and computer memory and processing chips, while the United States primarily imported cellular telephones, radio navigational aids (used for global positioning systems), and electronic circuitry.²¹¹ U.S. foreign direct investment in Taiwan in 2009 was \$19.5 billion, an 8.1 percent increase over 2008, for a cumulative total since 1982 (earliest data available) of \$174.6 billion.²¹² Key areas of U.S. investment in Taiwan are contract design and production, research and development, hardware components, and financial services.²¹³ Taiwan's direct investment in the United States is significantly less: \$3.9 billion in 2008 (the most recent year for data), an 18 percent decrease from 2007.²¹⁴

Table 5: U.S.-Taiwan Trade (in billions),*
2000–2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
U.S. Exports to Taiwan	\$32	\$26	\$26	\$24	\$31	\$32	\$34	\$37	\$37	\$29
U.S. Imports from Taiwan	\$49	\$42	\$41	\$41	\$46	\$48	\$53	\$53	\$50	\$41
Balance	-\$17	-\$16	-\$15	-\$17	-\$15	-\$16	-\$19	-\$16	-\$13	-\$12

Source: U.S. Bureau of Economic Analysis, "U.S. International Transactions, by Area—Taiwan" (Washington, DC: U.S. Department of Commerce, June 17, 2010). http://www.bea.gov/international/bp_web/simple.cfm?anon=71&table_id=10&area_id=40.

* Export data include goods, services, and income receipts; while income data include goods, services, and income payments.

In late September, 2010, the United States announced that trade talks with Taiwan, which had been suspended for several years, would resume.²¹⁵ Since 2008, trade talks with Taiwan had been frozen due to a Taiwan ban on certain types of U.S. beef imports* stemming from Taiwan's fear that it might contain bovine spongiform encephalopathy ("mad cow disease").† The announcement of the resumption of trade talks followed a two-day visit to Taiwan by Claire Reade, assistant U.S. Trade Representative for China Affairs. Further trade discussions between the United States and Taiwan are planned for late 2010 or early 2011.²¹⁶

U.S. Arms Sales to Taiwan

In 2010, the Obama Administration, in accordance with the Taiwan Relations Act of 1979,‡ twice informed Congress of its intent to sell arms and equipment to Taiwan. These arms sales are considered necessary in order to ensure Taiwan's defense in the event of a conflict with the mainland as well as to provide Taiwan with the confidence to negotiate with China.²¹⁷ The first announcement, in January 2010, was for a \$6.4 billion package that included the following items:

- Sixty UH-60 Blackhawk utility helicopters.
- Two Patriot Advanced Capability 3 surface-to-air missile units, one training unit, and 114 missiles.
- Additional datalink terminals and technical support for Taiwan's networked command and control system.
- Two *Osprey*-class mine-hunter ships.
- Twelve *Harpoon* antiship training missiles.²¹⁸

Beijing reacted quickly and forcefully to this announced sale. According to U.S. government analysis:

*China responded to the 29 January announcement of new US arms sales to Taiwan with its highest level protest and most forceful retaliation against such a package in recent years, suggesting that Beijing sees the sales as marking a significant challenge to its interests.*²¹⁹

*The banned beef products are ground beef, bone-in beef, and cow offal.

†The United States and Taiwan originally planned to hold trade talks in early 2010, following an October 2009 agreement between the two sides to allow the import of all U.S. beef products. However, a poor rollout of the agreement by the Taiwan government, and surprisingly strong domestic opposition on the island, led Taiwan's legislature to overturn the agreement in January 2010. As a result, the United States again suspended trade talks with Taiwan. Office of the U.S. Trade Representative (USTR) and the U.S. Department of Agriculture (USDA), "Joint Statement from USTR, USDA on Taiwan's Actions to Unjustifiably Restrict U.S. Beef Imports in Violation of Our Bilateral Agreement" (Washington, DC: January 5, 2010). <http://www.ustr.gov/about-us/press-office/press-releases/2010/january/joint-statement-ustr-usda-taiwan%E2%80%99s-actions-unjusti>; U.S.-China Economic and Security Review Commission, *Hearing on Taiwan-China: Recent Economic, Political, and Military Developments across the Strait, and Implications for the United States*, written testimony of Rupert Hammond-Chambers, March 18, 2010; and Shaun Tandon, "U.S. Rules out Taiwan Free Trade Deal," *Agence France-Presse*, July 7, 2010. http://www.google.com/hostednews/afp/article/ALeqM5j_RuJvFhIiqUQNup8GOVPhOLGdqg.

‡"The Taiwan Relations Act (TRA) of 1979, P.L. 96-8, has governed the U.S. relationship with Taiwan, in the absence of formal diplomatic recognition. . . . The TRA specifies that it is U.S. policy, among the stipulations: to consider any non-peaceful means to determine Taiwan's future 'a threat' to the peace and security of the Western Pacific and of 'grave concern' to the United States; 'to provide Taiwan with arms of a defensive character;' and 'to maintain the capacity of the United States to resist any resort to force or other forms of coercion' jeopardizing the security, or social or economic system of Taiwan's people." Shirley A. Kan, *China/Taiwan: Evolution of the "One China" Policy — Key Statements from Washington, Beijing, and Taipei* (Washington, DC: Congressional Research Service, July 9, 2007), summary page. A full text of the act is available at <http://www.ait.org.tw/en/taiwan-relations-act.html>.

The day after the White House announced the January arms sales, China's Ministry of Foreign Affairs stated that China was cutting off military-to-military exchanges with the United States. It also stated that China would impose sanctions upon those U.S. companies involved in the arms sales, a threat it does not appear China followed through on.²²⁰ After eight months of suspended military-to-military relations,* in September 2010 Beijing agreed to resume military talks with the United States after a visit by Deputy Assistant Secretary of Defense Schiffer. As of this Report's drafting, two additional military meetings between the United States and China have been scheduled: a meeting of the Military Maritime Consultative Agreement in Hawaii, and a meeting in Vietnam between Secretary of Defense Robert Gates and his Chinese counterpart, both scheduled for October, 2010.²²¹

In August, the Obama Administration made a second announcement of a \$100 million arms sales package to Taiwan, this time for radar upgrades. According to the U.S. State Department, this sale "will allow the commercial export to Taiwan of defense services, technical data, and defense articles to support Taiwan's existing air defense radar system and upgrades to existing radars on Taiwan's [F-CK-1] indigenous defense fighter aircraft."²²² To date, Beijing has reacted to this announcement in a more limited fashion than it did to the January 2010 announcement, resorting to just one official public condemnation of the announced sales: "China firmly opposes the United States selling weapons and relevant technical assistance to Taiwan . . . We urge the United States . . . to revoke their wrong decision and put an end to arms sales to Taiwan and military ties with Taiwan to avoid causing new harm to Sino-U.S. ties," stated a Ministry of Foreign Affairs spokesman.²²³

As of this Report's writing, Taiwan still has two outstanding arms sales requests. The first is for 66 F-16 C/D fighters, initially requested in 2006 during the Bush Administration. To date, neither the Bush Administration nor the Obama Administration has accepted Taiwan's Letter of Request for these fighters—the preliminary step in authorizing their release.²²⁴ However, Taiwan continues to seek the F-16 C/D, as noted in President Ma's June 2010 request to Raymond Burghardt, chairman of the American Institute of Taiwan, the de facto U.S. embassy in Taiwan. In response to President Ma, Chairman Burghardt stated that "[i]t's an issue we are studying. There has been no decision made saying we are not going to sell . . . We are carefully looking at the aerial defense needs of Taiwan."²²⁵

Another item not included in the January 2010 arms sales notification is a long-discussed design program for diesel-electric submarines.† According to Lt Col Stokes, these submarines "not only

* Although most exchanges between the PLA and the U.S. military had been cancelled, some interaction still occurred. A recent example is the meeting between Admiral Robert F. Willard, commander of the U.S. Pacific Command, and Lieutenant General Ma Xiaotian, deputy chief of staff of the PLA, during the May 2010 Strategic and Economic Dialogue in Beijing—the first high-level military-to-military meeting since January 2010. The Associated Press "PaCom [U.S. Pacific Command] Leader Wants Stronger Ties with China," *Marine Corps Times* May 25, 2010. http://www.marinecorpstimes.com/news/2010/05/ap_us_china_052510/.

† In 2001, the Bush Administration agreed to sell eight diesel-electric submarines to Taiwan. However, due to domestic political disagreements on Taiwan over the need for the submarines and U.S.-Taiwan pricing disagreements, this sale never materialized. Instead, by 2006, the re-

would undercut the coercive value of [China's] growing naval capabilities, but would also contribute toward countering an amphibious invasion.”²²⁶ When asked about the status of this program, Deputy Assistant Secretary of Defense Schiffer stated that the Department of Defense continues “to assess and look at [it].”²²⁷

Outstanding bilateral agreements

Two bilateral agreements between the United States and Taiwan are still under consideration as of this Report.

- *Bilateral extradition agreement*—this agreement would formalize extradition between the United States and Taiwan. During the Commission's December 2009 trip to Taiwan, President Ma noted to Commissioners that Taiwan already has a similar agreement with the mainland and is interested in pursuing such an agreement with the United States.²²⁸ In March 2010, Deputy Assistant Secretary of State Shear testified to the Commission that the Department of State was “looking at the possibility of an extradition agreement with Taiwan,” but had “not yet finished those deliberations.”²²⁹
- *Visa waiver program*—Taiwan is also interested in becoming a member of the U.S. State Department's visa waiver program.* In both May and June 2010, President Ma twice made public his desire to secure “visa-free treatment for Taiwan tourists.”²³⁰ However, according to a U.S. State Department official, Taiwan currently fails to meet the minimum qualifying standards for participation in the program and therefore presently is ineligible for consideration.†

Implications for the United States

There are two overarching implications for the United States that arise from recent developments in the cross-Strait relationship. First, the improved relationship between Taiwan and the mainland benefits the United States, and the region, by noticeably reducing tension across the Taiwan Strait. As Deputy Assistant Secretary of State Shear noted to the Commission, “Enhanced cul-

quest changed from actual submarines to a submarine design program, and the United States accepted Taiwan's Letter of Request in January 2008. However, to date neither the Bush Administration nor the Obama Administration had submitted the design program for Congressional review. Irley A. Kan, *Taiwan: Major U.S. Arms Sales Since 1990* (Washington, DC: Congressional Research Service, July 2, 2010), pp. 10–14.

*According to the U.S. Department of State, “The Visa Waiver Program (VWP) enables nationals of 36 participating countries to travel to the United States for tourism or business (visitor [B] visa purposes only) for stays of 90 days or less without obtaining a visa.” U.S. Department of State, “Visa Waiver Program.” http://travel.state.gov/visa/templwithout/without_1990.html#wvp.

†Specifically, Taiwan's visa refusal rates are too high to be considered for membership in this program. According to section 217 of the Immigration and Naturalization Act, in order to be eligible for participation, countries must have a tourist visa refusal rate for the more recent fiscal year of less than 2.5 percent and an average visa refusal rate for the past two fiscal years of less than 2 percent. Taiwan's visa refusal rates in 2008 and 2009 were 5.9 percent and 4.4 percent, respectively. Nicholas Manring (legislative management officer, Bureau of Legislative Affairs, U.S. Department of State) telephone interview with Commission staff, September 12, 2010; and “Immigration and Nationality Act,” Title 8, *U.S. Code* 1187, Sec. 217. 2010 edition. <http://www.uscis.gov/portal/site/uscis/menuitem.f6da51a2342135be7e9d7a10e0dc91a0/?vgnnextoid=fa7e539dc4bed010VgnVCM1000000ecd190aRCRD & vgnnextchannel=fa7e539dc4bed010VgnVCM1000000ecd190aRCRD&CH=act>; U.S. Department of State, “Adjusted Refusal Rate—B—Visas Only by Nationality, Fiscal Year 2009.” <http://www.travel.state.gov/pdf/FY09.pdf>; and U.S. Department of State, “Adjusted Refusal Rate—B—Visas Only by Nationality, Fiscal Year 2008.” <http://www.travel.state.gov/pdf/FY08.pdf>.

tural, economic and people-to-people contacts help further peace, stability and prosperity in the East Asian Region.”²³¹

Conversely, the growing military imbalance across the Taiwan Strait potentially poses problems for the United States. The PLA increasingly has the capacity to deny Taiwan’s air force the ability to defend Taiwan in the event of an air or missile attack, which in turn increases Taiwan’s reliance upon U.S. support in the event of a crisis. Furthermore, as chapter 2, section 1, of this Report demonstrates, the PLA’s air and conventional missile capabilities could now endanger U.S. military forces and bases in the region should Washington decide to intercede on Taiwan’s behalf in the event of a cross-Strait crisis.

Conclusions

- Over the past year, China and Taiwan have continued to improve their overall bilateral relationship. This improvement builds upon a trend begun at least in May 2008, with the inauguration of Taiwan President Ma Ying-jeou.
- The improvements in the cross-Strait relationship are not even across the board. Most improved are the bilateral economic ties, as demonstrated by the recent signing of a cross-Strait free trade agreement between China and Taiwan. Diplomatic relations, while less improved than the economic relationship, have also seen progress over the past year. Periodic meetings and negotiations between Taipei and Beijing have become the norm.
- The cross-Strait security situation is still of serious concern. China’s continued military buildup across from Taiwan is increasing the gap in military capabilities between the two sides. In particular, Taiwan’s air defense capabilities are degrading as its air force ages and the PLA’s air and missile capabilities improve.

Annex A: Cross-Strait Diplomatic Interactions since October 2009 *

Date	Taiwan Individual/Organization	PRC Individual/Organization	Location/Event
Oct. 2009	Chiang Pin-kung, chairman, Straits Exchange Foundation	Chen Yunlin, chairman of the Association for Relations Across the Straits	Media delegation to Beijing
Nov. 2009	Huang Chih-peng, director of Taiwan's Bureau of Foreign Trade	Tang Wei, director, Ministry of Commerce	Informal talks on the Economic Cooperation Framework Agreement
Nov. 2009	various	Liang Baohua, party secretary of Jiangsu Province	Large purchasing delegation to Taipei; \$4 billion in contracts signed
Nov. 2009	Pacific Cultural Foundation	Zheng Bijian, former deputy director of the Central Party School of the Chinese Communist Party; and a delegation of retired diplomats and generals	Conference in Taipei
Nov. 2009	Lien Chan, former vice president; honorary chairman of the Chinese Nationalist Party	Hu Jintao, president of China and general secretary of the Chinese Communist Party	Asia-Pacific Economic Cooperation leaders' meeting
Nov. 2009	Shih Yen-hsing, minister of economic affairs	Chen Deming, minister of commerce	Beijing
Nov. 2009	Various	Hu Xiaolian, deputy governor of the People's Bank of China	Delegation visit to Taipei
Dec. 2009	Straits Exchange Foundation	Association for Relations Across the Straits	Fourth round of formal cross-Strait discussions
Jan. 2010	Various	Huang Jiefu, vice minister of health	Visit to Taipei
Jan. 2010	Straits Exchange Foundation	Association for Relations Across the Straits	First round of formal Economic Cooperation Framework Agreement negotiations
Mar. 2010	Various	Wang Lingjun, vice governor of Qinghai Province	Delegation visit
Mar. 2010	Various	Tang Wei, director, Ministry of Commerce	Visit to Taipei for informal discussions
Mar. 2010	Various	Jiang Zengwei, vice minister of Commerce	Five-day tour
Mar. 2010	Straits Exchange Foundation	Association for Relations Across the Straits	Second round of formal Economic Cooperation Framework Agreement negotiations
Apr. 2010	Various	Han Zheng, mayor of Shanghai	Delegation visit to Taipei
Apr. 2010	General (ret.) Hsu Linung	Jia Qinglin, member of the Central Committee Politburo	Delegation to Beijing
Apr. 2010	Lien Chan, former vice president; honorary chairman of the Chinese Nationalist Party; and Wu Poh-Hsiung, former chairman of the Chinese Nationalist Party	Hu Jintao, president of China and general secretary of the Chinese Communist Party	Shanghai

**Annex A: Cross-Strait Diplomatic Interactions since October 2009*—
Continued**

Date	Taiwan Individual/ Organization	PRC Individual/ Organization	Location/Event
May 2010	Various	Huang Xiaojing, governor of Fujian Province	Delegation to Taiwan
May 2010	Various	Tang Wei, director, Ministry of Commerce	Visit to Taipei for informal discussions
Jun. 2010	Shih Yen-hsing, minister of Economic Affairs	Chen Deming, minister of Commerce	Asia-Pacific Economic Cooperation meeting, Sapporo, Japan
Jun. 2010	Various	Lu Zushan, governor of Zhejiang Province	Delegation to Taiwan
Jun. 2010	Straits Exchange Foundation	Association for Relations Across the Straits	Third round of formal Economic Cooperation Framework Agreement negotiations
Jun. 2010	Su Huan-chih, magistrate of Tainan County	Various	Trip to Beijing to promote Tainan agriculture
Jun. 2010	Straits Exchange Foundation	Association for Relations Across the Straits	Fourth round of formal talks on the Economic Cooperation Framework Agreement; agreement signed
Jul. 2010	Wu Poh-Hsiung, former chairman of the Chinese Nationalist Party	Hu Jintao, president of China and general secretary of the Chinese Communist Party	Cross-Strait relations meeting in Beijing

Sources: USCC staff compilation from various sources.

* October 2009 is chosen as the starting point, since this is when the Commission's *2009 Annual Report* went to publication. For interactions prior to October 2009, see U.S.-China Economic and Security Review Commission, *2009 Report to Congress* (Washington, DC: U.S. Government Printing Office, November 2009), pp. 234–35. http://www.uscc.gov/annual_report/2009/annual_report_full_09.pdf.

SECTION 3: HONG KONG

Introduction

Over the past year, the Commission tracked key issues in Hong Kong in the areas of politics, the economy, and the environment.

In the realm of politics, Hong Kong saw instances of public protest against the mainland authorities in 2010. The protests highlighted a willingness on the part of Hong Kong residents to demonstrate against Beijing as well as continued tension between residents living under Hong Kong's separate political system and the mainland's communist regime. Protests over a threatened conversion of Cantonese language media in China to Mandarin and a strong turnout at Hong Kong's annual vigil in remembrance of the 1989 Tiananmen Square massacre are key examples.

The year 2010 also saw a change in Hong Kong's electoral process that received mixed reviews from the populace. Some praised the partial step toward giving Hong Kong voters more independence in choosing additional candidates for office, while others argued that such changes were insubstantial and merely designed to silence dissent.

Hong Kong enjoyed noticeable improvement in its economy during 2010. Hong Kong's gross domestic product (GDP) for the first quarter of 2010 rose 10 percent from the previous year. The second quarter GDP rose 5.9 percent from the previous year.²³² Hong Kong's GDP growth for 2010 is forecast by the Hong Kong government to be 5 to 6 percent after accounting for the data from the first two quarters of 2010.²³³ During the Commission's 2010 Asia trip, Hong Kong officials credited the recovery to an economic stimulus policy that promoted exports and supported small- and medium-sized industries. Hong Kong is also targeting specific sectors of its economy for growth, including job creating sectors such as tourism and shipping.

Hong Kong's environment remains a key issue in Hong Kong's political relationship with China. While many Hong Kong residents complain about pollution emanating from factories located in China's Pearl River Delta, many of these factories are owned by Hong Kong companies that benefit from China's lax environmental standards.

Protests Over Mandarin Requirements

One development aptly demonstrates the uneven progress in the struggle for freedom of expression.²³⁴ In July 2010, protestors in Hong Kong and Guangzhou, Guangdong Province, simultaneously demonstrated against Chinese government plans to convert local media broadcasts in Guangzhou from native Cantonese to Mandarin in the runup to the Asian Games planned in the region in November. The protests also saw Guangdong residents travel to

Hong Kong in order to participate. Apparently as a result of these protests, China did not implement the proposed switch. However, Chinese authorities quickly and thoroughly censored reporting about the event in China's press, perhaps for fear of similar protests in other areas of China with large concentrations of minority language speakers, such as Tibet and Xinjiang.²³⁵

Tiananmen Square Vigil

Students and activists in Hong Kong annually commemorate the anniversary of the 1989 Tiananmen Square protests. However, the large number of participants in 2010 in a Hong Kong memorial candlelight service surrounding the 21st anniversary of the massacre of student demonstrators surprised many observers. Some media estimated that 150,000 people turned out for the event, matching the numbers for the large 20th anniversary event in 2009.^{236,237} An earlier decision by administrators at the Chinese University of Hong Kong not to allow students to construct a replica of the Goddess of Democracy statue, a symbol prominently used in the 1989 protests, stoked interest in the vigil.²³⁸

Wang Dan, a Chinese democracy activist and student leader in Tiananmen Square in 1989, wrote after the 2010 Hong Kong vigil that "Hong Kong has inherited the spirit of the 1989 generation . . . Many Chinese people from the mainland have been going to Hong Kong to breathe the air of freedom."²³⁹

Support For Nobel Peace Prize Winner

Hong Kong residents rallied in support of jailed Chinese dissident Liu Xiaobo after he was awarded the Nobel peace prize on October 8, 2010. The award sparked renewed calls for Mr. Liu's release from the West as well as in Hong Kong.^{240,241}

Electoral Reform

Hong Kong's legislature has been criticized for being unwilling to act independently from Beijing. As described in the Commission's *2009 Annual Report*, Hong Kong's Legislative Council is increasingly influenced by China, specifically through China's Central Government Liaison Office in Hong Kong.²⁴² As the Commission noted at the time, this influence appears to violate Article 22 of Hong Kong's Basic Law, which protects Hong Kong's political independence.

On June 25, Hong Kong's legislature voted 46 to 12 in favor of passing a compromise government-sponsored electoral reform bill that expanded the legislature's 60 seats by an additional ten popularly elected seats.²⁴³ For the first time, a majority of the positions, 40, are subject to direct election. The remaining seats will be appointed by functional constituencies. Many democracy advocates complain that these interest groups have close ties to Beijing.²⁴⁴ The Commission has previously reported that these functional constituencies favor Hong Kong's business sectors, which have substantial investments in mainland China that could face retaliation if Hong Kong's Legislative Council were to anger Beijing. Critics charge this makes the current Legislative Council unwilling to act against China's wishes.²⁴⁵

Another portion of the bill enlarges a much-criticized committee for choosing Hong Kong's chief executive to 1,200 members, up from the current 800. The current 800-member committee is made up of 200 representatives from four groups: the industrial, commercial, and financial sectors; the professions; labor, social services, religious and other sectors; and government officials²⁴⁶. However, it remains unclear who will choose the makeup of the new committee. The changes affect elections scheduled for 2012.

However, some democracy advocates have argued that the new law moves too slowly toward universal suffrage. Hong Kong has five pro-democracy political parties that split over the tactics that should be used on this issue.²⁴⁷ Specifically, the law calls for universal suffrage for electing the Hong Kong chief executive in 2017 and for electing the legislative council in 2020. The law lacks plans for reaching those goals, opponents argued.²⁴⁸ For example, Alan Leong, a legislator belonging to the Civic Party and former candidate for chief executive, said on June 21 that "we are worried that these detours [away from universal suffrage] in the governmental proposal will make it even harder to achieve universal suffrage" because of the lack of a clear roadmap for achieving the goal of a freely elected government.²⁴⁹

While supporters, such as Beijing-chosen Hong Kong Chief Executive Donald Tsang, praised the reforms as evidence that "consensus and reform are possible," twelve pro-democracy legislators boycotted the vote. One such lawmaker, Albert Chan, declared the day of the vote "the darkest day in Hong Kong's democratic development," according to press reports. Moderates praised the deal as the first example of cooperation between Beijing and Hong Kong's various pro-democracy factions.²⁵⁰

Media Issues

Self-censorship among reporters remains widespread, although difficult to quantify. In 2007, the most recent year for which data were available, about 30 percent of reporters admitted to self-censoring their work.²⁵¹ This took place before additional censorship measures were carried out by editors and publishers.

In June, a Hong Kong book publisher halted the much-anticipated release of Chinese Premier Li Peng's memoirs. Media reported at the time that Mr. Li had never consented to the publication in Hong Kong and the publication had been suppressed in China by the central government.²⁵² While there was speculation that the publisher gave in to Chinese government pressure, the publisher refused to answer press questions regarding who supplied any evidence of a breach of copyright.²⁵³

A controversial biography of Wen Jiabao by Chinese dissident Yu Jie, entitled *China's Best Actor*, led to his brief detention by Hong Kong authorities in July 2010, who warned against publishing the book.²⁵⁴ However, Mr. Yu published the book in August 2010. The book is currently available in Hong Kong and Taiwan. The book is unavailable in mainland China.

Hong Kong's Economy

The International Monetary Fund (IMF) has a positive outlook for the economy of Hong Kong in 2010. It predicts unemployment

will drop from 5.1 percent in 2009, to 4.8 percent in 2010, and to 4.5 percent in 2011, respectively. Additionally, the IMF predicts that Hong Kong's real GDP will grow 6 percent and 4.4 percent in 2010 and 2011, respectively. This is a significant turnaround from 2009, when Hong Kong's GDP shrank 2.8 percent.²⁵⁵

During the Commission's trip to Hong Kong in August 2010, Rita Lau, Hong Kong's secretary for Commerce and Economic Development, said that she is "reasonably confident" that Hong Kong will see 4 to 5 percent GDP growth in 2010.

In addition to GDP, Hong Kong's international trade figures also dropped in 2009, according to official statistics. Because Hong Kong is the location for China's second-largest container port after Shanghai, port revenues dominate the local economy. Although few of the exports that pass through Hong Kong are manufactured there, Hong Kong ranked as the world's 11th largest exporter in 2009. The value of total merchandise trade through the Port of Hong Kong dropped to \$666 billion, 316 percent of GDP, down from \$751 billion in 2008.^{256,257}

In their meetings with Commissioners, Hong Kong officials made note of their stimulus program, which they said would boost economic growth. Hong Kong's stimulus included a strong focus on offering credit to small- and medium-sized businesses during the financial crisis. Hong Kong's government, through the stimulus program, targeted specific growth areas, according to Mrs. Lau. These areas included the innovation and technology sector, cultural and creative business, the medical sector, education, the environmental or green technology sector, and the testing and certification sector. In each of these areas, Hong Kong is focusing on job training to supply workers with the appropriate skill sets. For example, in the creative business development area, Mrs. Lau said that Hong Kong was planning to develop film studios capable of cutting-edge 3D and computer-generated image-making. Hong Kong is also focusing on boosting tourism. While tourism accounts for 4 to 6 percent of total GDP for Hong Kong, it generates employment in the retail, hotel, and transportation sectors, according to Mrs. Lau.

Mrs. Lau praised the stimulus for turning around the "severe" downturn in trade flows from 2009. Hong Kong's stimulus would be extended to the end of 2010, Mrs. Lau said, but at that point officials plan to pull back stimulus funding and allow the markets to recover without government intervention.

Hong Kong's Environment

Hong Kong officials said that the single most important issue between Hong Kong and mainland China remained the environment and pollution. Earlier this year, Hong Kong's Environmental Protection Department reported that some air pollution readings were double the level at which citizens should stay indoors.²⁵⁸ The Hong Kong Chamber of Commerce, which has 4,000 multinational corporations in its membership, asked the government to take "decisive" action,^{259,260} which it apparently did through the issuance of a reduced emissions plan released in September 2010.

China's Pearl River Delta remained the largest source of pollution for Hong Kong, in part because the large number of Hong Kong-owned factories in the Pearl River Delta makes stronger envi-

ronmental regulations politically unpopular among businesses invested in China. Hong Kong's Secretary for the Environment, Edward Yau, confirmed that Hong Kong-owned businesses control "roughly half" of the 50,000 to 60,000 businesses operating in the Pearl River Delta.

During its Asia trip, Commissioners met with Mr. Yau and independent Hong Kong organizations working on environmental issues, including Greenpeace and Civic Exchange, a Hong Kong-based think tank founded by local environmentalists.

Mr. Yau noted that Hong Kong has a low carbon footprint. Data from the United Nations Millennium Development Goals project showed Hong Kong to have a per capita carbon footprint of 5.75 tons of CO₂ per person in 2007, the most recent data available.²⁶¹ By contrast, the United States has a per capita carbon footprint of 18.9 tons. According to Mike Kilburn, a member of Civic Exchange, Hong Kong's government "sees itself more as a consensus builder than a regulator" and sometimes proves unwilling to take on those with vested interests. Greenpeace Hong Kong also noted that the government works in terms of goals rather than by setting standards or regulations. According to Gloria Chang, campaign manager at Greenpeace, Hong Kong is not included in China's ambitious environmental targets. Instead, Hong Kong currently is bound only by its Asia-Pacific Economic Cooperation (APEC)* commitments, to reduce its energy intensity by 25 percent by 2030, using 2005 as the base year.

However, since the Commission's visit, the Hong Kong government has released an ambitious plan to decrease its greenhouse gas emissions. In September 2010, Mr. Yau released a "consultation document," outlining Hong Kong's position on climate change and proposing a voluntary carbon intensity reduction target of 50–60 percent of 2010 emissions by 2020.²⁶²

To meet that goal, Hong Kong's government proposed a radical change in its electricity portfolio, cutting back on coal-generated electricity by expanding natural gas and nuclear power, as well as instituting renewable energy projects. In 2009, coal accounted for 54 percent of Hong Kong's electricity production, while 23 percent came from nuclear power and 23 percent from natural gas. The 2020 goal would drop coal from 54 percent to just 10 percent, with nuclear and natural gas accounting for approximately 50 and 40 percent, respectively. Renewable energy sources, including wind and solar, will account for 3 to 4 percent, according to the document.

Other steps outlined in the document included increasing energy efficiency standards for buildings and "greening" road transportation and promoting clean fuel vehicles. This includes the use of modern building materials to increase efficiency, tougher standards on vehicle emissions, and promotion of electric vehicles and hybrids.

*APEC has 21 member economies and engages in discussions on trade and economic issues. Members include Australia, Brunei, Canada, Chile, China, Hong Kong, Indonesia, Japan, South Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, the Philippines, Russia, Singapore, Chinese Taipei, Thailand, the United States, and Vietnam.

Implications for the United States

Hong Kong remains a central hub for Pacific trade, including imports to and exports from the United States. In 2008, U.S. goods and services trade with Hong Kong totaled \$42 billion, with imports totaling \$14 billion and exports totaling \$28 billion.²⁶³ As Hong Kong's economy continues to recover, trade with the United States will increase as well.

Other U.S. interests in Hong Kong are based, in part, on the state of human rights conditions and democracy, including the assurance of a free press and the movement toward universal suffrage for Hong Kong. Hong Kong serves as a test of China's commitments and willingness to allow basic freedoms to some citizens under its control. These freedoms are based on commitments China made to maintain the rule of law and democracy in Hong Kong with the 1997 turnover.

Conclusions

- In 2010, efforts to transition elections for Hong Kong's Legislative Council to universal suffrage, agreed to in the Joint Declaration, were once again delayed, which was met with controversy among Hong Kong's democracy supporters. Also in 2010, the freedom of the press in Hong Kong remained an ongoing struggle.
- Hong Kong is facing a number of environmental problems due to its proximity to the manufacturing hub of the Pearl River Delta.
- Hong Kong's economy has noticeably recovered from the 2009 downturn, due to a targeted economic stimulus that focused on small- and medium-sized enterprises.

RECOMMENDATIONS

China in Southeast Asia

- The Commission recommends that Congress urge the administration to continue to increase its engagement with Southeast Asia diplomatically, economically, and militarily. Congress should also press the administration to commit to annual U.S.-ASEAN summits and, when possible commit the President of the United States to travel to Southeast Asia to attend the meetings.
- The Commission recommends that Congress urge the administration to move quickly in appointing a new U.S. ambassador to ASEAN.
- The Commission recommends that Congress urge the administration to press Beijing to make more transparent its planned construction of hydropower dams along the Mekong River.
- The Commission recommends that Congress require the U.S. Department of Agriculture and other relevant government agencies to submit a report detailing the impact that Chinese hydroelectric dams along the Mekong River could potentially have on the global food supply.

Taiwan

- The Commission recommends that Congress direct the Department of Defense to address the issue of Taiwan's air defense capabilities, to include a more detailed net assessment of Taiwan's needs vis-à-vis China's growing military air and missile capabilities and an assessment of the impact that further deterioration in Taiwan's air defense capabilities could have on U.S. forces in the event of U.S. involvement in a cross-Strait scenario.
- The Commission recommends that Congress encourage the administration to continue to support the improving relationship between Taiwan and China.
- The Commission recommends that Congress encourage the administration to identify ways to strengthen economic relations between the United States and Taiwan in order to improve Taiwan's position in further economic negotiations with the mainland.
- The Commission recommends that Congress pass a joint resolution reaffirming the importance of, and continued U.S. commitment to, the Taiwan Relations Act of 1979.
- The Commission recommends that Congress urge the administration to encourage the People's Republic of China to build upon

the improved cross-Strait relationship by renouncing the use of force in regard to resolving its dispute with Taiwan. Beijing should also be encouraged to demonstrate its good intentions by drawing down the number of short-range ballistic missile forces deployed against Taiwan.

- The Commission recommends that Congress encourage the administration to continue to work with Taiwan to modernize its armed forces, with particular emphasis on its air defense needs.

Hong Kong

- The Commission recommends that Congress reauthorize the U.S.-Hong Kong Policy Act of 1992, which expired in 2007.
- The Commission recommends that Members of Congress, when visiting mainland China, also visit Hong Kong and that Congress encourage senior administration officials, including the secretary of State, to make visits to Hong Kong part of their travel.
- The Commission recommends that Congress encourage its Members to raise the issue of preserving Hong Kong's special status when meeting with members of China's National People's Congress.

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CHAPTER 4

**CHINA'S GREEN ENERGY POLICIES
AND EFFORTS TO PROMOTE THE
ALTERNATIVE ENERGY SECTOR**

**SECTION 1: CHINA'S ENVIRONMENTAL
AND GREEN ENERGY POLICIES**

Introduction

This year, the Commission held two hearings and went on a fact-finding trip to China in order to investigate China's recent adoption of a large number of domestic policies to promote its green energy industry and improve environmental conditions in the country.* This chapter of the Commission's Report will describe the measures that China has adopted to promote clean energy and the implications this has for the United States. The first section of the chapter will focus on overarching domestic policies to improve the environment and to move toward new forms of clean energy, including China's participation in United Nations (UN) climate change negotiations. The second section will focus specifically on Beijing's efforts to promote its wind, solar, and electric vehicle manufacturing sectors and how these efforts compare with U.S. efforts to promote these sectors. This section will incorporate information obtained from a field hearing held in Toledo, Ohio; Commission meetings with officials during a trip to China; and several visits to green energy manufacturing sites in China.

China currently is the world's biggest energy consumer, the largest emitter of carbon dioxide, and home to some of the most polluted cities in the world.†¹ Realizing that its energy use is directly affecting its economy and security, Beijing has taken significant steps to increase the use of green energy in the country. Chinese leaders view the promotion of these policies as a means to curb demand and increase energy security. In addition, Beijing hopes that "going green" can help to mitigate the polluting effects of China's increasing energy use and help to establish a new, internationally competitive green energy industry. As a result, in 2009, China became the top investor in renewable energy, moving the United

*In the following two sections, "green energy and environmental policies" refer to Chinese policies to promote energy sources beyond traditional coal, oil, and natural gas. It also refers to policies to promote energy efficiency and environmental protection. "Renewable energy," a form of green energy, refers to solar, wind, hydropower, and biomass energy.

† In July 2010, the International Energy Agency announced that China overtook the United States to become the biggest energy consumer in the world in 2009. China's National Bureau of Statistics and its National Energy Agency have refuted these statistics, asserting that in 2009, China consumed at least 200 million tons of oil equivalent less than the United States.

States to second place.² The specific policies the government has used to improve energy efficiency and reduce harmful pollutants are wide-ranging and have led to significant improvements. Despite noteworthy accomplishments, problems with enforcement and environmental governance, as well as China's incessant energy demand increases, have hampered and will continue to hamper many of the policies that have been enacted.

Chinese Reasons to Promote Green Energy and Environmental Policies

Chinese leaders have announced several reasons why the country should be moving toward using cleaner and more environmentally friendly energy. Not only would China's push for green energy promote energy security, but Chinese leaders also believe this effort can help to prevent politically destabilizing environmental problems while simultaneously building a globally competitive green energy industry.

Energy Security

One of the primary reasons why China wishes to curb its energy demand and promote green energy is to increase its domestic energy security. In April 2010, Premier Wen Jiabao stated, "We must accelerate the development and use of renewable energies to ensure the country's energy security."³ Since 2000, China has doubled its consumption of energy and, according to the International Energy Agency, "Prospects for further growth are very strong considering the country's low per-capita consumption level and the fact that China is the most populous nation on the planet."⁴ This consumption fuels the country's economy and, if this energy were not available, would severely limit the prospects for future gross domestic product (GDP) growth. In a study commissioned by the National Foreign Trade Council, the law firm of Dewey & LeBoeuf LLC noted:

China's continued economic growth—and stability—ultimately rests upon the availability of adequate supplies of energy. . . . At present rates of extraction China will run out of domestic sources of petroleum, natural gas, and coal in an estimated 7, 22, and 75 years, respectively.⁵

China is already a net energy importer. In 2006, it became the world's third-largest net importer of oil, with over 50 percent of its oil coming from overseas. Despite having one of the world's largest coal reserves, in 2009, China became a net importer of coal.*⁶ As mentioned in the Commission's 2008 Annual Report, China's reliance on imports makes the country's energy, and thus its economy, vulnerable to supply shocks caused by geopolitical instability, aggression from other countries, or natural disasters.⁷ In order to circumvent these problems, China has looked to improve its ability to produce energy domestically and consume its energy more effi-

*In 2009, China imported 126 million metric tons of coal and only exported 22 million tons. This is only a fraction of China's total coal consumption, which reached 1.4 billion tons in 2008.

ciently. Chinese leaders have pointed to green energy, specifically, as a means of enhancing energy security in the country.

Environmental Problems

A second reason why China is moving toward using green energy is to mitigate its many environmental problems. In January 2010, Xie Zhenhua, vice minister of the National Development and Reform Commission, stated, “Developing a low-carbon economy can help China achieve its interest in . . . breaking free from the constraints of China’s long history of environmental problems and high pollution.”⁸ Approximately 70 percent of China’s energy consumption is from the use of coal, the most environmentally unfriendly form of energy.⁹ Making matters worse, industry,[†] which produces large amounts of pollution, accounts for approximately 70 percent of China’s final energy consumption.¹⁰

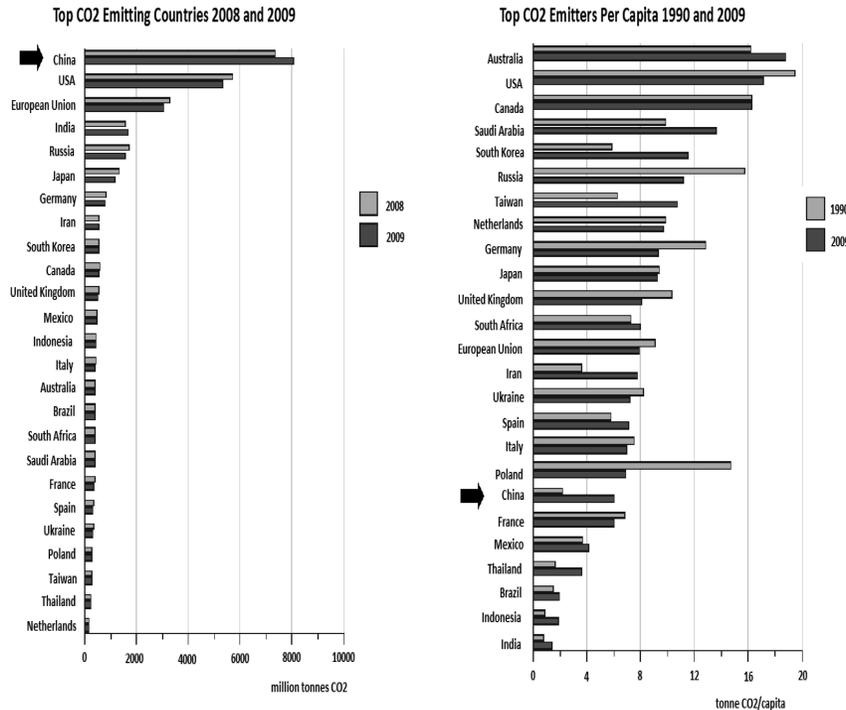
China’s consumption of fossil fuels, especially coal, has made it the world’s largest emitter of carbon dioxide, emitting 8.1 billion metric tons in 2009, or 21 percent of the world total. Although China ranks relatively low in terms of carbon dioxide emissions per capita (see figure 1 below), this amount, too, has more than doubled since 1990.[‡]¹¹ Environmental experts in the Chinese government assert that greenhouse gas emissions, such as carbon dioxide, are a leading cause of climate change that is affecting China.¹² China’s National Climate Change Programme, a body under China’s National Development and Reform Commission, has noted that global climate change has the potential to significantly threaten the agriculture and livestock industry, natural ecosystems, water resources, and coastal areas.[§]¹³ Rob Bradley, then director of the International Climate Policy Initiative at the World Resources Institute, testified that “[w]ith large coastal and delta populations, strained fresh water supplies, and a host of other issues facing it, China is rightly concerned about the stresses a hotter planet will place on its society.”¹⁴

*The combustion of coal adds a more significant amount of carbon dioxide to the earth’s atmosphere than the burning of other fossil fuels.

† Industry includes facilities and equipment used for manufacturing, agriculture, mining, and construction. Domestic industry in China lags behind international producers in energy efficiency; Chinese cement, copper, and papermakers use between 45 and 120 percent more energy than do European and U.S. producers.

‡ In 2009, China’s per capita emissions reached the same level as France.

§ For the past 13 years, China has experienced warmer-than-average temperatures, frequent extreme climate events, and accelerated glacier and snow melt as a result of its burgeoning carbon dioxide emissions.

Figure 1: Carbon Dioxide (CO₂) Emissions by Country

Source: Chart adapted from J.G.J. Olivier and J.A.H.W. Peters, "No growth in total CO₂ emissions in 2009" (Biltoeven, Netherlands: Netherlands Environmental Assessment Agency, July 1, 2010), p. 5. <http://www.rivm.nl/bibliotheek/rapporten/500212001.pdf>.

China's amplified energy use and industrialization are also leading to a significant increase in both air and water pollution. In July 2010, China's Ministry of Environmental Protection announced that air quality had worsened in the previous year because of increased construction and industrial growth paid for by the country's economic stimulus program.¹⁵ Jennifer Turner, director of the China Environment Forum at Washington, DC's, Woodrow Wilson Center, testified that the burning of coal and heavy automobile use in cities leads to an estimated 750,000 people dying early per year from respiratory illnesses.¹⁶ Water pollution is also a significant problem. According to China's Ministry of Environmental Protection, one quarter of China's surface water is contaminated, and more than a quarter cannot be used for drinking, swimming, or fishing.¹⁷ Increases in both air and water pollution have a significant effect on the Chinese economy. A 2007 World Bank report estimated that the annual cost of air and water pollution in China is about \$112 billion in damages to agriculture and fisheries and in costs of acquiring adequate water for consumption.¹⁸ Chinese air pollution also is having a significant effect on its neighbors, with South Korea and Japan often bearing the brunt of hazardous dust storms that originate in northern China.¹⁹ During the Commission's August 2010 trip to Hong Kong, a professor from Hong Kong

University of Science and Technology noted that 60 to 70 percent of ambient pollution in Hong Kong comes from the Pearl River Delta in the mainland. This pollution also is affecting the United States. In written testimony submitted to the Commission, Assistant Administrator for the U.S. Environmental Protection Agency Michelle DePass stated:

We can say with confidence that intercontinental flows of air pollution from Asia have an impact on environmental quality in the United States, possibly affecting the ability of some areas to attain air quality standards and environmental goals.²⁰

Exacerbating everyday pollution is the number of environmental disasters that have taken place in China in recent years. In a recent report, China's Ministry of Environmental Protection announced that environmental accidents had increased by 96 percent in the first six months of 2010.²¹ One of these accidents, an acid leak at a copper mine in Fujian Province, killed enough fish to feed 72,000 people for a year.²² Environmental activists also have blamed landslides in Gansu Province that have led to over 1,700 deaths on unchecked development, such as the cutting down of forests and the building of hydroelectric dams in the region.²³

Create a Green Industry

A final, but not necessarily less important, reason why China wishes to curb its reliance on energy-intensive sources to fuel its economy is to help foster the growth of the burgeoning green technology sector. According to Bloomberg New Energy Finance and the Pew Charitable Trust:

Between 2004 and 2009, clean energy investments (including renewables, efficiency technologies, biofuels, carbon capture and storage, nuclear power, and other low-carbon technologies) grew at an average compound annual growth rate of 39 percent and the wind and solar markets have sustained annual growth rates above 30 percent for the last decade ... totaling \$173 billion in 2008.²⁴

Researchers also note that under a "business-as-usual" case (assuming no changes to existing international climate change policy), cumulative global investments in clean power generation technologies will be \$1.58 trillion over the next decade. If aggressive international climate action is taken, the amount of cumulative investment could reach \$2.19 trillion.²⁵ Chinese leaders have announced that they would like to take advantage of the growth of this sector. In September 2009, Premier Wen Jiabao stated, "[China] will accelerate the development of a low-carbon economy and green economy so as to gain an advantageous position in the international industrial competition."²⁶ China is creating conditions for its domestic green technology companies to flourish at home and in the export market and to attract investments from international companies in China, thereby boosting domestic GDP and creating jobs.²⁷ In testimony to the Commission, Julian Wong, then senior policy analyst at the Center for American Progress, stated, "Clean energy development is in many ways the 'sweet spot'

industry that fits very nicely with all of [China's] goals of economic reform." These goals include developing domestic science and technology innovation and creating "national champions" that can compete internationally.²⁸ Section 2 of this chapter discusses China's efforts to promote the wind, solar, and electric vehicle sectors in detail.

China's 11th Five Year Plan (2006–2010)

Realizing the challenges of uncurbed energy demand and environmental degradation, China has taken considerable steps to alleviate these problems. In 2005, Chinese leaders laid out noteworthy targets for reducing pollution and energy consumption in its 11th Five Year Plan for 2006 to 2010.* Two of the most important energy targets in the most recent five year plan are the following:

- *Reduce energy intensity (energy consumption per unit of GDP) by 20 percent by the end of 2010*—In the first four years of the plan, China was on track to achieve this target, having reduced energy intensity by 14.5 percent. However, earlier this year, China's National Bureau of Statistics announced that energy intensity had increased by 0.9 percent in the first half of 2010.†²⁹ In May 2010, Premier Wen Jiabao stated that he will use an "iron fist" to ensure that the 20 percent target is met by the end of 2010.³⁰
- *Reduce major pollutant emissions by 10 percent by the end of 2010*—According to China's Ministry of Environmental Protection, as of the end of 2009, China had reduced its sulfur dioxide emissions (the main cause of air pollution) by 13.14 percent and its chemical oxygen demand (the main measure of water pollution) by 9.66 percent.‡³¹

In order to achieve the targets laid out in the Five Year Plan, Beijing has enacted a large number of new policies. Much media attention has been focused on China's efforts to promote its renewable energy sector (hydropower, biomass, wind, and solar). However, many of the policies have focused on improving the energy efficiency of existing technology and for planned industrial projects. Mr. Wong testified that the Chinese government supports these efforts because they are more cost-effective and thus will likely command a higher share of investment over renewable energy projects

* China's five year plans set the direction for economic and social development to be achieved in the next five years.

† China's National Bureau of Statistics reported that in the first quarter of 2010, China had increased energy intensity by 3.5 percent, making it more than 8 percentage points away from reaching its 20 percent reduction goal. However, after the second quarter of 2010, the bureau revised the data so that it is less than five percentage points away from the target. This dramatic change from the first to the second quarter has caused several media analysts to question the reliability of Chinese data. See, for example: Leslie Hook, "China energy use: a sudden revision of the numbers," *Financial Times*, July 26, 2010. <http://blogs.ft.com/beyond-brics/2010/07/16/chinese-energy-use-a-sudden-revision-in-the-numbers/>; Shai Oster, "China Reports Improved Energy Efficiency," *Wall Street Journal*, August 3, 2010. http://online.wsj.com/article/NA_WSJ_PUB:SB1000142405274870499604575406961858974790.html.

‡ During its first national pollution source census in 2007, China found that chemical oxygen demand discharge was actually more than twice the levels that were originally thought. Nevertheless, the 11th Five Year Plan targets are still going to be measured against the numbers reported prior to the pollution census. Alex Wang, "Chinese officials talk environmental and climate governance at the National People's Congress Meetings," National Resources Defense Council: GreenLaw, March 17, 2010. <http://www.greenlaw.org.cn/enblog/?p=2320>.

in the future.³² The following is a list of some of the major projects that have led to China's recent achievements in lowering energy intensity and reducing harmful pollutants:

- *Government support for renewable energy*—China has adopted a number of policies to support its renewable energy sector, including a clean energy standard mandating that 15 percent of China's primary energy come from nonfossil sources by 2020. The Chinese government will focus primarily on wind, solar, and biomass power but will also rely on hydropower to meet this goal.³³ In 2009 alone, \$34.6 billion was invested in Chinese companies working in the renewable energy sector, a large portion of which came from Chinese state-owned entities. According to Ethan Zindler of Bloomberg New Energy Finance, "These funds for Chinese firms and projects came from a variety of sources, including Western private equity funds, Chinese development banks, balance sheets of large Chinese state-owned entities, and even small Western investors buying shares of publicly-traded Chinese firms."³⁴ In comparison, the United States attracted \$18.6 billion in public and private investment.³⁵ Because of Chinese government support, China is the largest hydropower generator in the world and has plans to double its hydropower capacity by 2020.*³⁶ Section 2 of this chapter discusses China's specific programs supporting the renewable energy section.
- *Government support for nuclear energy*—In addition to its renewable energy targets, China has set a goal of building 20 nuclear power plants by 2020, which would increase its nuclear capacity at least fourfold.³⁷ If achieved, China will account for 57 percent of all new nuclear power plant construction globally between 2007 and 2020.³⁸
- *Shutting down of inefficient factories and power plants*—Since 2005, China has shut down almost 7,500 inefficient small power plants and has mandated that all new coal plants must use state-of-the-art technology.³⁹ Assistant Secretary of Energy for Policy and International Affairs David Sandalow testified to the Commission that because of new regulations, "the average efficiency of [a coal-fired power plant] in China is better than the U.S. average."⁴⁰ In addition, in August 2010, China's Ministry of Industry and Information Technology published a list of over 2,000 energy-inefficient steel, iron, cement, and paper factories that will be forced to close by the end of September.†⁴¹ As of the publication of this Report, it is unclear whether the factories were actually closed down.
- *"Top 1,000 Program"*—In 2006, China's National Development Reform Council launched a program to set targets for and monitor improvements in energy efficiency for China's 1,000 largest

*While hydropower is considered a form of renewable energy, several Chinese and western activists have denounced hydropower for its detrimental effects on the environment. They purport that many large-scale dam projects have harmed natural ecosystems and caused severe natural disasters. Large dams in China also have displaced millions of individuals from their homes and land, causing a number of social problems as well. Finally, Chinese hydroelectric dams have raised serious concerns among downstream countries in Southeast Asia and India because of environmental impacts and China's ability to control downstream water flows.

†According to the ministry, if the factories refuse to close, state-owned banks will deny them access to lending, and utility companies will suspend their power.

companies, which account for one third of China's total energy use. At the program's current rate, carbon dioxide emissions will be cumulatively reduced by about 250 million tons by the end of 2010, about 3.6 percent of China's total annual carbon dioxide emissions.⁴²

- *“Ten Key Projects”*—In 2005, the Chinese government allocated \$1 billion to improve energy efficiency regulations in industry and buildings.⁴³ The biggest gains from the “Ten Key Projects” have come from renovation of coal-fired industrial boilers, combined heat and power systems* in urban areas, and the building of more energy-efficient residential and commercial spaces.⁴⁴
- *Appliance, electronics, and transportation standards*—In the past five years, the Chinese government has established mandatory energy-efficiency standards that cover most appliances, lighting, and heating equipment. The Center for American Progress, a Washington, DC-based think tank, predicts that these standards will help China to avoid 100 million tons of carbon dioxide emissions per year (1.4 percent of total annual emissions).⁴⁵ In addition, China has launched a number of fuel economy standards for passenger cars, many of which are more stringent than those in the United States.⁴⁶
- *Tax and fiscal policies*—China has enacted corporate income tax deductions for companies investing in environmentally friendly projects and equipment. China also has adopted vehicle taxes meant to make energy-intensive vehicles more expensive and reduced export tax rebates for many low value added but high energy-consuming products.⁴⁷
- *Pollution policies*—In 2008, China revised its Water Pollution Control Act, which now requires governments at the county level and above to incorporate water protection into their social and economic development plans, making water protection a major component of local officials' appraisal process.⁴⁸ In addition, in May 2010, China's State Council announced that it would be raising air pollution emission standards in several of the most air-polluted provinces in the country.[†]⁴⁹ Dr. Turner testified to the Commission that these “new laws and targets aim, in part, to circumvent powerful local governments, which have long hindered effective implementation of pollution control and energy savings policies.”⁵⁰
- *Improving measurement and reporting of energy and environmental statistics*—In 2005, China declared that regional and municipal-level leaders would be responsible for delivering biannual progress reports on energy-intensity reduction. China's National Bureau of Statistics periodically conducts independent verification of the data and punishes and rewards officials accordingly.⁵¹

* Combined heat and power systems generate power and thermal energy from a single fuel source.

† The regulations will focus on the Beijing-Tianjin-Hebei region; the Yangtze River Delta region (including Shanghai); the Pearl River Delta region (including Shenzhen and Guangzhou); central Liaoning; the Shandong Peninsula; Wuhan and its surrounding area; the Changsha, Zhuzhou, and Xiangtan region; and the Chengdu and Chongqing region. The standards require each region to impose limits on the expansion of coal-fired power plants and place an emissions cap on harmful emissions.

The 2007 Energy Law also requires large commercial energy users to report energy use to the government, which is used to verify reports from provincial and municipal governments.⁵² A 2009 law strengthened penalties for providing inaccurate statistics, with enterprises facing up to a 50,000 renminbi (RMB) (US\$7,343) fine.⁵³ To date, no information is available on what companies, if any, have been charged with violating the law.

Future Policies and Targets

Chinese officials have recently stated that environmental and clean energy policies will continue to be a priority in the immediate future. In November 2009, Premier Wen Jiabao announced that by 2020, China would reduce carbon intensity by 40 to 45 percent from 2005 levels.* Some experts believe that this target would have already been accomplished through China's current domestic policies.⁵⁴ Others argue that to succeed, China must spend an additional \$30 billion on clean energy and environmental programs every year until 2020.⁵⁵ Mr. Bradley testified that "China's commitment is a significant but achievable, step, but it will require China to pursue a suite of policies more sweeping—and more challenging—than its existing energy-efficiency and green energy efforts."⁵⁶ It is expected that the target will be included in China's 12th Five Year Plan.⁵⁷ Chinese leaders also are discussing a domestic carbon-trading program to be implemented in the near future. According to a participant in a meeting among Chinese energy policymakers, "The consensus that a domestic carbon-trading scheme is essential was reached, but a debate is still ongoing among experts and industries regarding what approach should be adopted."⁵⁸ Chinese policymakers currently are discussing whether to put an absolute cap on carbon and in which cities and/or sectors to begin pilot programs.⁵⁹

Challenges to Addressing Environmental and Energy Concerns

While Beijing has passed numerous pieces of legislation addressing environmental concerns, there often has been difficulty in implementing laws and accurately measuring successes or failures. Environmental Protection Agency Assistant Administrator DePass submitted testimony stating:

The 'planning culture' in China, a legacy of decades of single-party rule, remains strong, while the rule of law and 'compliance culture' are still evolving. Despite enactment of a range of legislation in recent decades, many provisions in China's environmental statutes have aspirational mandates, unclear enforcement mechanisms, and limited or weak provisions for judicial review or public oversight.⁶⁰

One of the reasons for these problems is that there are almost 50 central administrative bodies that form energy and environmen-

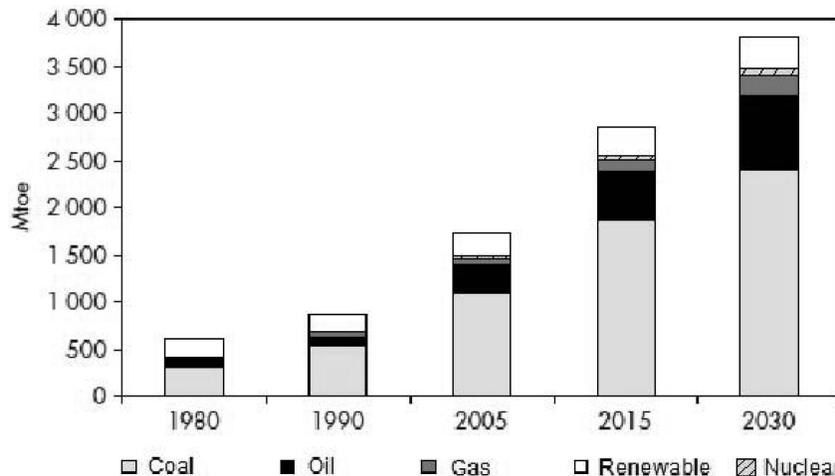
* Carbon intensity is defined as carbon dioxide emitted per unit of GDP (i.e., the ratio of one ton of carbon dioxide to \$1,000 of GDP). By this measure, if China's GDP continues to increase rapidly, emissions could still increase, but the rate of increase will slow. According to figures published by the U.S. Department of Energy, China in 2006 emitted 2.85 tons of carbon dioxide from fossil fuels for every \$1,000 of GDP. In comparison, the United States in 2006 emitted 0.52 tons of carbon dioxide for every \$1,000 of GDP.

tal policies in China. Bureaucratic infighting and a lack of coordination among ministries, commissions, and state-owned companies have led to severe challenges in creating and implementing policies.⁶¹

Enforcement of clean energy and environmental laws is particularly difficult at the local level. Local authorities often have difficulties accessing the capital necessary to make energy efficiency upgrades, collect accurate data on carbon emissions, and gauge the effectiveness of current policies.⁶² It is for this reason that only about 25 percent of China's more than 660 cities are capable of monitoring water quality once a month to check for pollutants.⁶³ In addition, Stephen Hammer, director of the Joint US–China Cooperation on Clean Energy's Smart Cities Initiative, testified that the performance of local officials is still primarily appraised based on economic output. He stated, "Because local officials are expected to deliver 6 to 8 percent GDP growth each year, and because the 'report cards' used to evaluate local official performance are so heavily skewed toward economic indicators, meaningful progress may take some time."⁶⁴

A final challenge is that China must balance between protecting its environment and developing its economy. China's demand for energy will continue to grow at a rapid rate despite attempts to curb it. The International Energy Agency estimates that total energy demand will increase by more than 25 percent by 2015 and by almost 60 percent by 2030 despite China's clean energy policies. The agency also estimates that coal will still account for 63 percent of China's energy mix by 2030.⁶⁵ During the Commission's July 2010 trip to China, a representative from the China Institute for International and Strategic Studies stated that China is still 100 years behind the United States in industrializing. In order to maintain high levels of GDP growth, the country will keep up its large appetite for energy.⁶⁶

Figure 2: China's Primary Energy Demand, 1980–2030



Source: Adapted from International Energy Agency, *World Economic Outlook 2007: China and India Insights* (Paris, France: Organization for Economic Cooperation and Development, 2007), p. 289.

China's Participation in UN Climate Change Negotiations

China is party to a number of UN treaties addressing global environmental concerns. As a party to the United Nations Framework Convention on Climate Change,* the Kyoto Protocol,† and the Copenhagen Accord, China has expressed its commitment to preventing and mitigating climate change and to improving its environmental standards. Although contentious, the identification of China as a developing nation based on the 1992 UN Framework Convention on Climate Change therefore does not require China to make legally binding commitments that an independent body can verify.⁶⁷ During the Commission's July trip to China, a representative from China's Ministry of Foreign Affairs reiterated that China is still a developing country and thus has different obligations than developed countries in climate negotiations.

The December 2009 UN Copenhagen Summit was meant to establish targets for a framework for climate change mitigation beyond 2012. Ultimately, many policymakers and environmental experts deemed the summit a failure. Many were disappointed with the failure to achieve a comprehensive agreement at Copenhagen and were dissatisfied with the final Copenhagen Accord. The Copenhagen Accord is a legally nonbinding international agreement seeking to limit the rise in global temperatures by 2 degrees Celsius and noting that developed countries will provide \$100 billion of support to developing nations by 2020.⁶⁸ Each country that "took note of" the Copenhagen Accord also submitted its own domestic actions to prevent and mitigate the effects of global climate change. China is one of the nations that expressed its support for the accord and submitted its 40–45 percent carbon intensity reduction target to the UN Framework Convention on Climate Change.⁶⁹

Many of those disappointed with the outcome of the Copenhagen Summit blamed China for the failure of the conference and severely criticized China's negotiators for refusing to budge on several core principles, which included the following:

- *Common but differentiated responsibilities*—China maintained that developed countries should take more arduous mitigation actions than developing countries (to include itself), such as providing financial and technological support to help developing nations limit their carbon emissions.
- *Nonbinding international commitments*—China asserted that any domestic targets that developing nations submit (such as China's 40–45 percent carbon intensity target) should not be legally binding.⁷⁰

* China signed the United Nations Framework Convention on Climate Change in 1992. The objective of the treaty was to limit greenhouse gas emissions in the atmosphere. While the convention did not set mandatory emissions caps for individual countries, it set the foundation for developed countries to establish targets to reduce emissions in future agreements. Under the treaty, China is considered a developing country. The United States is also party to the convention and is considered a developed country.

† China ratified the Kyoto Protocol in 2005. The protocol establishes the concept that developed countries are principally responsible for the current levels of greenhouse gas emissions as a result of more than 150 years of industrial activity. Because of this, the protocol puts a higher burden on developed nations under the principle of "common but differentiated responsibilities." The United States has not ratified the protocol.

Ed Miliband, Britain's lead climate negotiator at Copenhagen, stated that China had "hijacked" the conference by refusing to allow legally binding targets.⁷¹ In testimony to the Commission, Elizabeth Economy, director for Asia Studies at the Council on Foreign Relations, noted that China was relatively obstinate in its approach not because Beijing intentionally wanted to obstruct the conference but because its negotiators had little room to negotiate beyond what was approved by senior leaders in China. She stated, "Everything China was prepared to give [at Copenhagen] was right up front. After that there wasn't going to be much room for real negotiation moving forward . . . What surprised [China] was the extent to which they were blamed for Copenhagen going awry."⁷²

The United States and China clashed on a number of issues at Copenhagen. One of the main sources of contention was China's refusal to submit its 40–45 percent carbon intensity reduction target to international verification to ensure that China does not manipulate its data to show higher emissions cuts.⁷³ After much negotiation, China agreed to make its domestically produced reports publicly available, but only actions that receive international financing or technology would be subject to independent verification.⁷⁴ A second disagreement had to do with the provision of financing to developing nations. Early on in the negotiations, the United States stated it would direct funding toward the least developed countries and would not provide funds to help China curb its emissions.⁷⁵ The United States eventually agreed to contribute to a \$100 billion international fund for developing nations.*⁷⁶ However, the offer was contingent on China committing its emissions to a binding agreement and submitting the reductions to transparent verification. By the end of the summit, China agreed to neither precondition.⁷⁷

Despite China's recalcitrance at the Copenhagen Summit, several witnesses testified to the Commission that China's commitments were significant and achieved some long-sought U.S. goals. Mr. Bradley noted that China's submission of its 40–45 percent carbon intensity reduction target to the UN Framework Convention on Climate Change was the first time China had ever submitted a numerical target, albeit voluntary, for lowering its carbon emissions. In addition, Beijing agreed to submit its domestic reports on emissions to the United Nations biannually. He stated, "Not that long ago, many experts would have considered securing even these public commitments unlikely."⁷⁸

*The United States made it clear during the meetings that China would not receive any of the U.S. funding meant for developing nations to mitigate the effects of climate change. China did not completely discount itself as a contender for future funds, but it stated it has never thought of itself as first in line for financing.

China's Role on the International Stage

Another important development at Copenhagen was that China stepped out as a leading player on the international stage. During the summit, China joined together with Brazil, South Africa, and India to form the BASIC group, which purported to be the primary representatives of all developing nations. It was the BASIC group and the United States that drafted the final Copenhagen Accord.⁷⁹ Dr. Economy stated:

*China is in the midst of carving out a new role for itself in global politics ... and Chinese leadership is uncertain as to whether it should seek to retain its position as a large, successful developing country or assert its role as a global power, with all the rights and responsibilities that entails ... Copenhagen, in this respect, may have been a watershed event. For many developing countries, climate change has revealed China as less and less 'one of us' and more and more 'one of them.'*⁸⁰

Witnesses viewed China's decision to take a higher-profile role in the climate discussions as being somewhat uncharacteristic. China has agreed to continue to take a lead on climate issues and hosted the last round of talks prior to the next UN Framework Convention on Climate Change summit in Cancun.⁸¹ According to Mr. Bradley, this "signals an increasing willingness to expose itself to both the potential risks and rewards of active international engagement."⁸²

U.S.-China Environmental and Clean Energy Cooperation

Environmental protection and clean energy have been noted as one of the main areas for cooperation in the U.S.–China bilateral relationship. Dennis Bracy, chief executive officer of the U.S.-China Clean Energy Forum, testified to the Commission:

*When it comes to energy, China and the U.S. are in the same boat. And even with the current tensions between our countries, we see no letup in China's willingness to cooperate on clean energy and [energy] efficiency. Understanding our differences, but building on our mutual benefits, we can do more together, more quickly, than we can separately.*⁸³

Indeed, the two governments have been cooperating for over 30 years on environmental and energy efficiency initiatives and have signed 45 cooperative agreements.⁸⁴ Several areas that experts have noted as important for cooperation between the United States and China in the clean energy field are the following:

- *Capacity-building to measure emissions*—Because the United States has had extensive experience in collecting statistics on carbon dioxide emissions, it is in a position to help China build its capacity to collect reliable environmental and energy data.⁸⁵ One example of this type of cooperation is the October 2009 memorandum of cooperation between the U.S. Environmental

Protection Agency and China's National Development and Reform Commission, which helps to develop China's inventory of greenhouse gas emissions.⁸⁶

- *Clean coal*—Both the United States and China have significant domestic coal reserves and rely heavily on coal for their primary energy supply.* Cooperation on improving the efficiency of coal-fired power plants and research and development for carbon capture and storage could have significant impacts on both countries' greenhouse gas emissions.†⁸⁷ L. Cartan Sumner, vice president of International Government Relations at Peabody Energy Corp, testified about one such initiative, the \$1 billion GreenGen project. It is a joint venture between Chinese utilities and coal companies and St. Louis-based Peabody Energy Corp, designed to build a near-zero emissions coal-fired power plant in Tianjin, China.⁸⁸
- *Smart grid technology*‡—According to the Pew Center on Global Climate Change, “Both the United States and China rely on outdated, decentralized, and inefficient electrical transmission systems. Both countries could profit from research, development, and adoption of new ‘smart grid’ technologies capable of enabling these systems to handle larger quotients of low-carbon energy from . . . renewable energy sources.”⁸⁹
- *Research and development for additional clean technologies*—Both governments have spent significant amounts of money to promote the development of clean technologies. Nevertheless, many of these remain in their nascent stages and are extremely expensive. In July 2009, the United States and China formed the U.S.-China Clean Energy Research Center to facilitate joint research and development on technologies for clean coal, environmentally friendly vehicles, and energy-efficient buildings.⁹⁰ According to Assistant Secretary of Energy Sandalow, “The United States and China have complementary strengths in these areas, so each country will benefit from collaborative research.”⁹¹ In March 2010, the U.S. Department of Energy announced that the United States would provide \$75 million in public and private funding for the research center. China will provide an additional \$75 million.⁹²

(For a list of major U.S.-China clean energy cooperation deals since 2008, please see the appendix at the end of this section.)

While many agree that cooperation on climate and energy issues is important for both countries, some experts have expressed concern over the possible negative implications of cooperation. One area of concern is intellectual property protection. American com-

* China relies on coal for over 70 percent of its total energy use. The United States relies on coal for almost 30 percent of total energy use.

† Carbon capture and storage is the process used to capture carbon dioxide from power plants or industrial facilities, compress it, and then transport it to suitable locations in order to inject it into subsurface geological formations. This prevents the carbon dioxide from escaping into the atmosphere.

‡ Smart grids differ from traditional electric grids in that they allow users to monitor and control grid activities. This allows the two-way flow of electricity and information between power plants and consumers and can dramatically increase energy efficiency. They also enhance the ability to connect renewable energy sources to main power grids.

panies are often reluctant to invest in clean technology in China because of China's lax intellectual property protection. According to Albert Tramosch, deputy executive director of the American Intellectual Property Law Association, "[I] am not aware of any major initiatives that are coming out of the Chinese government ... that relate to ways to facilitate the patent protection of green technology."⁹³ Another concern among some U.S. business people and policymakers is that China could reap the benefits of cooperation at the expense of U.S. industry. They further argue that any U.S. money going to cooperation on clean energy is disenfranchising the domestic clean energy sector in the United States, which already is falling behind Chinese clean energy manufacturers.⁹⁴ For example, when several U.S. senators learned that U.S. stimulus money would go toward a Texas wind farm whose turbines would be manufactured in China, Senator Sherrod Brown (D-OH) stated: "We cannot sit idly by while China races to the forefront of clean energy production at the expense of U.S. manufacturing, U.S. jobs, and U.S. energy independence. And we certainly can't shoot ourselves in the foot by helping to finance Chinese clean energy production."⁹⁵ (For more information on the competition between U.S. and Chinese renewable energy companies, see chap. 4, sec. 2, of this Report.) Finally, several analysts criticize U.S.-China cooperation because of its history of ineffectiveness. Many of the impediments that prevent China from enacting sweeping clean energy legislation domestically, such as low implementation at the local level and lack of transparency, also inhibit broader cooperation with the United States. In addition, the United States has often signed cooperative agreements without having a dedicated source of funding for the endeavors.⁹⁶ Dr. Economy stated:

Chinese energy and environmental agencies are woefully understaffed and often unable to meet the demands of in-depth cooperation. ... There is also a very real danger that U.S. officials will raise expectations within China but fail to deliver if, for example, the U.S. government does not provide adequate funding ... as has happened with past cooperative energy and environmental ventures.⁹⁷

Implications for the United States

To the extent that China's green energy and environmental policies lead to reductions in carbon dioxide emissions and harmful pollutants that are internationally threatening, these policies are positive for the United States. As China increases its capacity to curb pollution and energy intensity, it also may be able to increase mutually beneficial cooperation with the United States on clean energy. This cooperation could serve to reduce clean energy costs for both countries and to respond to the effects of global climate change. However, as the Chinese government supports its domestic clean energy sector, the United States must be wary of protectionist measures that disadvantage U.S. companies both in China and in the international market. (For more information on China's protectionist measures to promote domestic wind, solar, and electric vehicles sectors, please see chap. 4, sec. 2, of this Report.)

The fact that China still characterizes itself (and is considered by the United Nations to be) a developing nation could also have numerous implications for the United States. According to the 1992 UN Framework Convention on Climate Change, as a developing nation, China has no legally binding responsibilities under international climate agreements. Dr. Economy testified that China “will continue to use [its] developing country status as a protective shield against further pressure [to increase its international climate commitments].”⁹⁸ In addition, because of its developing nation status, China is eligible to receive funding from developed countries, such as the United States. At Copenhagen, China announced that it did not consider itself first in line for funding but did not discount itself as a contender for future funds.⁹⁹ Depending on the results of the November/December 2010 climate summit in Cancun, this could mean that the United States would be contributing to a pool of funds that could be supporting China’s domestic clean energy sector.

Conclusions

- China has devoted a significant amount of money and has developed legislation in an effort to find alternative sources for energy, improve energy efficiency, protect the environment in the country, and build sectors of its economy.
- Despite progress in reducing pollutants and increasing green energy over the short term, significant problems such as lack of compliance at the local level and China’s economic development plans may make it harder to sustain this progress over the long term.
- China’s domestic legislation on green energy has been more substantive than its commitments in international climate change negotiations. Despite the fact that China believes it is in its domestic interest to curb energy inefficiency and carbon emissions, Beijing is reluctant to be held accountable for reductions on the international stage.
- The United States and China share many similar challenges in their quest for green energy and could have much to gain from cooperation on these issues.

SECTION 2: U.S. AND CHINESE EFFORTS TO PROMOTE SOLAR AND WIND ENERGY MANUFACTURING

Introduction

The United States and China each have identified alternative energy equipment production, in particular solar and wind technology, as a potential source of high-wage employment and an opportunity to export high-value-added goods to the world.

The Obama Administration has repeatedly emphasized green technology's role in job creation and highlighted green technology in its 2010 National Export Initiative, which is intended to double the level of U.S. exports within five years. According to the U.S. Department of Commerce, the green sector has the potential to fuel economic growth in the immediate future. More than two dozen states have also identified green technology's potential to create jobs and to revitalize manufacturing areas that have been damaged by imports, outsourcing, and the loss of export markets abroad. This section is crafted under the assumption that global demand for green technology will continue. As part of its examination of the role of China in the green technology sector in 2010, the Commission held a hearing on July 14 in Toledo, Ohio, a center for photovoltaic research and production and a possible site for a Lake Erie offshore wind turbine farm. The Commission also sought to compare the efforts of the United States and Ohio to develop wind and solar power to the plans by the government of China to develop a globally competitive industry in these technologies.

China has added alternative energy to its growing list of favored and subsidized industries. It has identified key domestic performers and funneled resources to these companies in an effort to strengthen their global market share.¹⁰⁰ At the same time, China has made its own market increasingly difficult for foreign companies to enter and to compete against Chinese firms. One European official, Arnulf Jager-Waldau, the head of the European Commission's Joint Research Centre's renewable energy section, described China's endeavors in the solar market:

[China and Taiwan have] an industrial policy and a means to build up industry and make a profit, whereas in the United States and in Europe [the solar industry] is viewed as a green technology [more] intended to combat global warming.¹⁰¹

Green energy research and production are specifically included in China's 11th Five Year Plan. This plan is intended to be implemented by the central, provincial, and local governments and by state-owned and state-controlled companies. Virtually all the power

production, distribution, mining, and natural gas and petroleum industries in China are government owned or controlled.¹⁰² In fact, almost every aspect of the energy market in China is “dominated” by state-owned enterprises and supervised by the State Assets Supervision and Administration Commission, a branch of the central government that oversees state-owned companies. Add the energy companies operated by provincial and municipal governments, and “virtually all electricity generation” and most transmission equipment, including renewable energy equipment, is produced by state-owned enterprises, according to a 2010 report from the law firm of Dewey & LeBoeuf.¹⁰³

Energy analysts generally agree that Chinese policies on renewable energy research, development, and production are comprehensive and heavily funded by the government over the long term. This is in contrast to U.S. policies that are too often uncoordinated among levels of government and subject to the uncertainty of the annual appropriations process on the federal and state levels.¹⁰⁴

China’s immense size, its three decades of rapid economic growth, and its relatively inefficient power grid have caused its energy demands to expand rapidly. According to the International Energy Agency, China by 2006 was already the world’s largest emitter of carbon dioxide and became the world’s largest energy user in 2009.¹⁰⁵ China has responded with policies to expand renewable energy production, citing economic, environmental, and national security reasons.¹⁰⁶ As part of its energy policy, China intends to service this market with domestic production.* Notes one study of China’s renewable energy policies:

*Chinese planners have indicated their intention that eventually most or all of the renewable energy equipment installed in China will be made in China, will be based on Chinese-owned intellectual property, and will embody Chinese-developed standards. This objective is being advanced through a sweeping array of laws, regulations and other measures which establish local content requirements for renewable energy projects.*¹⁰⁷

Both the United States and China have focused on wind and solar energy technology for renewable energy in the domestic market. China had initially focused almost exclusively on large hydroelectric projects prior to this decade but has since shifted focus. The environmental damage associated with some of the hydroelectric programs, including the large Three Gorges Dam, reduced support for the costly approach.¹⁰⁸ Displacement of Chinese citizens to make way for the construction and flooding of farmland has led to some social unrest.¹⁰⁹

* China has refuted the statistics released by the International Energy Agency. The National Bureau of Statistics and the National Energy Agency asserted that in 2009, China consumed at least 200 million tons of oil equivalent less than the United States. Xinhua, “China dismisses IEA [International Energy Agency] analysis of it being the world’s top energy user,” July 20, 2010. http://news.xinhuanet.com/english2010/china/2010-07/20/c_13406190.htm.

Wind

China has deployed a relatively modest 12.2 gigawatts of wind power as of 2010* compared to China's planned capacity of 30 gigawatts of wind power¹¹⁰ by 2020, but U.S. studies of the China market predict a rapid increase in wind power production. The United States and China are expected to account for 65 percent of global demand for wind products in 2010. U.S.-based companies currently account for 12 percent of production capacity, while China accounts for 39 percent.¹¹¹

Investment in the wind sector in China surged in 2007 when China's chief government economic planning agency, the National Development and Reform Commission, created a renewable portfolio standard † for Chinese power companies. In 2007, 25 Chinese companies were producing wind turbines; by 2009, that number exceeded 100 producers.

The renewable portfolio standard requires that larger power companies have 3 percent of renewable capacity by 2010 and 8 percent by 2020. Wind farms are also eligible for a 50 percent value added tax rebate on wind turbines and related equipment. As part of China's efforts to meet these goals, the National Development and Reform Commission plans a massive program of "Three Gorges in the Air" wind farms. These farms are large-scale wind farms with large Chinese-made wind turbines.

Another key development in 2009 was a ban in China on deployment of turbines of less than 1,000 kilowatts for most projects, on the grounds of inefficiencies. The ban had a discriminatory effect on imported turbines, since most of the smaller models are produced by European and American companies. Larger wind turbines are more expensive and require substantial new investment to build but require comparatively less maintenance and can be more efficient, because they require fewer installations. But the larger wind turbines require new investment by manufacturers. Many foundries in the United States, for example, are reluctant to invest in new, larger molds for the larger turbine casings unless they can be guaranteed a substantial production run. Chinese state-owned foundries are under no such profit constraints.¹¹²

Greg Noethlich, the chief operating officer for an Ohio-based foundry, noted that while China has the fastest-growing market for wind turbine parts, U.S. producers of wind turbines face Chinese tariffs that decrease their competitiveness.¹¹³ Wind turbines imported into China currently face a 10 percent tariff, although China's bound rate ‡ upon accession to the World Trade Organization (WTO) permits a tariff up to 11.7 percent.§ These rates could be modified under a future Environmental Goods and Services Agreement at the WTO.¹¹⁴ Such an agreement would look to reduce or

* This represents less than 1 percent of China's total energy portfolio in 2010.

† A renewable portfolio standard is a government mandate that utilities must provide a certain percentage of their total energy supply, or portfolio, through renewable sources.

‡ A bound rate in international trade refers to the highest import tariff a WTO member agrees to upon accession to the body. Bound rates can vary from product to product and from WTO member to member.

§ China's tariff schedule, which was negotiated during China's WTO accession, sets the upper limit on all tariffs for imports into China. It is based on a classification known as the Harmonized Tariff Schedule (HTS). The tariff on wind turbines is found under HTS code 8502, which covers a variety of wind turbine sizes. <http://www.mac.doc.gov/China/Docs/searchable/other/tariffs.pdf>.

eliminate barriers to trade in environmental goods and services. A proposed Environmental Goods and Services Agreement is included in the broader ongoing Doha Round of WTO negotiations on further trade liberalization under the WTO, but members have not yet agreed on the scope of the agreement.¹¹⁵

According to the International Trade Commission, wind turbines imported into the United States are assessed a tariff of 2.5 percent.¹¹⁶ While the National Development and Reform Commission claims to have phased out strict local content requirements for wind turbine manufacturing, foreign producers have yet to win a procurement contract. Chinese companies have capitalized on this protected market opportunity to increase domestic share from 18 percent in 2004 to 62 percent in 2008.¹¹⁷ In 2009 this trend continued, with all multinational firms bidding on National Development and Reform Commission projects quickly disqualified on technical grounds within three days of applying.

Figure 1: “Three Gorges in the Air” Wind Farm Locations in China

Province	Capacity (in gigawatts)
Gansu	12.7
Xinjiang	10.8
Inner Mongolia (2)	57.8
Jiangsu	10.0
Hebei	10.8
Jilin	23.0

Source: Thomas Howell et al., “China’s Promotion of the Renewable Electric Power Equipment Industry; Hydro, Wind, Solar, Biomass” (Washington, DC: Dewey & LeBoeuf LLP, March 2010), p. 53.

Wind projects in the United States have benefited from the production tax credit, which originated in the Energy Policy Act of 1992 and grants a federal income tax credit of \$0.021 per kilowatt hour available for electricity from utility-scale wind turbines. The availability of the program has, however, been inconsistent.¹¹⁸ The tax credit has expired three times in the last decade, only to be restored after delays. There has been a consistent drop in installations of wind power projects following each expiration of the credit. A study by Bloomberg New Energy Finance found that the unpredictability of the credit hampered its effectiveness. The production tax credit “never provided the level of long-term market visibility required to make a substantial manufacturing investment,” the study found.¹¹⁹

Manufacturers and suppliers in the industry agreed with this assessment. “The timing and planning framework for most manufacturers is much longer than one year,” said Ty Haines, vice president of Manufacturing Services of WIRE–Net, an Ohio-based manufacturing consulting company and member of the Great Lakes Wind Network.* Mr. Haines told the Commission that “[a] three-

*The Great Lakes Wind Network is a Cleveland-based consortium of wind turbine parts and services companies in the United States.

year time frame in place ... fits better with a business person's planning." ¹²⁰

Solar

China recently has invested significantly in solar power generation in an effort to build the domestic market. This newer investment is likely to increase in light of the 2009 Golden Sun Demonstration Program, which provides investment subsidies up to 50 percent of the cost for grid-connected solar power systems.¹²¹ To date, 314 projects have been approved under the National Development and Reform Commission program, which will bring on line a total of 630 megawatts of new solar capacity. This would represent an increase of 4.5 times the current 140 megawatts of installed capacity. The United States had a far-larger 8,775 megawatts of total solar capacity in 2008.¹²²

The United States and other countries are increasingly turning to Chinese companies for solar panels as the quality and technical proficiency of Chinese manufacturers have increased. China is already the world's largest exporter of solar panels. In 2008, China exported 2,600 megawatts of photovoltaic panels, roughly one-third of the worldwide total.¹²³ China has been particularly competitive in the California solar market, with a 42 percent market share. However, when the financial crisis unfolded, many renewable energy projects were delayed, and China currently faces a production glut as large markets, notably Spain, have sharply reduced installations.

In 2009, the largest and lowest-cost manufacturer of solar panels, U.S.-based First Solar, Inc., announced plans to build the world's largest solar array in Inner Mongolia, the first foreign investment into China's solar energy sector. The terms of the project included production of some parts of the solar panels in China. As of August 2010, the deal was reportedly at risk over concerns about the tariff rate for imported solar panels and the price China would pay for power generated at the site.¹²⁴ A planned June 1 date to break ground on construction was missed, and the *Washington Post* reported that Chinese companies "complained openly" that such a large contract had gone to a foreign firm.¹²⁵ First Solar has denied media reports that the deal has broken down.

The main incentive for solar energy production in the United States is the investment tax credit, which provides a federal income tax credit for up to 30 percent of the expense of a solar project. The Emergency Economic Stabilization Act of 2008 extended the program for eight years, to 2016. The administration recently announced grants of \$1.85 billion to help construct a total of three solar plants in Arizona, Indiana, and Colorado.

Two incentives were included in the American Recovery and Reinvestment Act of 2009, an investment tax credit under section 48c of the tax code and a Treasury Department grant program. An official from U.S.-based First Solar, Inc., testified at the Commission's hearing that several aspects of the American Recovery and Reinvestment Act were key supports for the U.S. solar industry. However, this witness noted that these programs were considered likely to expire and do not offer long-term support.¹²⁶

American Recovery and Reinvestment Act programs include the \$2.3 billion for advanced energy manufacturing projects contained in the section 48C manufacturing investment tax credit. Another program praised by First Solar was the section 1603 Treasury Deployment Grant Program, which provided a grant in lieu of the investment tax credit for solar projects. However, this program will expire at the end of 2010. Kathy Weiss, vice president for government affairs at First Solar, testified that the “vital” program helps attract investors for U.S.-based solar projects and needs to be extended through 2012.¹²⁷

According to Ms. Weiss, one flaw in the implementation of these programs has been the different funding levels each received. While the Treasury grant for solar projects was uncapped, the manufacturing investment tax credit was capped at \$2.3 billion.¹²⁸ This has led to a disparity between available U.S. production of solar panels and demand for new solar projects. This disparity has been met by foreign suppliers, mostly Chinese.

U.S. firms are losing global market share in the green technology sector, mostly to China, with solar panel manufacturing experiencing a particularly severe loss. As various sources have noted, China became the largest producer of solar panels in the world in 2008, shipping 2,600 megawatts of photovoltaic panels, enough for about one-third of annual world supply.^{129,130}

A recent study by the Pew Charitable Trust found that China was the largest investor in renewable energy of the Group of Twenty (G-20) members* in 2009, while the United States continued to have the largest capacity in its renewable energy sector. China topped the investment list with \$34.6 billion invested in the sector, or 30.5 percent of the group’s total.¹³¹ The United States was the second-largest investor, with \$18.6 billion, or 16.4 percent of the total. As of 2009, China had 52.5 gigawatts of renewable energy capacity installed, representing a 78.9 percent five-year growth rate. The United States had 53.4 gigawatts of renewable capacity as of 2009, representing a growth rate of 24.3 percent during a five-year period. While the United States still had the largest renewable energy capacity at the end of 2009, China’s stated renewable energy targets will mean Chinese capacity should surpass U.S. capacity in the next one to three years.¹³²

“The United States risks losing out on this opportunity, as it lags behind economic competitors in Asia and Europe in the production of virtually all clean energy technologies,” said energy analyst Devon Swezey of the Breakthrough Institute at the Commission’s June hearing in Toledo.¹³³ “China, in particular, has emerged as a clean energy powerhouse,” he said. Currently, the United States has only four of the world’s top 30 renewable energy manufacturers, while China and Europe are moving ahead with “comprehensive clean energy investment strategies.”¹³⁴

Contrasted with policies in China’s five- and ten-year energy plans, current U.S. federal policies on renewable energy promotion are generally short term and are not always fully funded. For ex-

*The Group of twenty countries is comprised of the European Union and the remaining 19 largest national economies of the world. Members are Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, the Republic of Korea, Turkey, the United Kingdom, and the United States.

ample, renewable energy projects in the United States qualify for the investment tax credit that covers 30 percent of project costs. But that provision is subject to yearly changes that make the return on investment highly uncertain.¹³⁵

These diverging strategies have created an imbalanced trade in green technology bilaterally. Based on 2008 data, the United States had a trade deficit in the renewable energy sector of \$6.4 billion, up from a trade deficit of just under \$300 million in 1997.¹³⁶

A recent study by the Congressional Research Service found that, with the exception of biofuels such as ethanol, federal subsidies “are generally authorized for short periods and must be periodically reauthorized . . . (and) are not always fully funded in appropriations legislation.”¹³⁷

Federal Incentives and Government Support

The federal government has required its agencies to increase purchases of renewable energy to a minimum of 7.5 percent of total electricity by 2013, and agencies receive double credit for energy generated on their facility site.* A 2007 executive order augmented this requirement to stipulate that half of the requirement must be met through renewable energy projects built after January 1, 1999.

New private facilities in the United States can also receive a subsidy of \$0.015 per kilowatt hour for the first ten years of a facility’s operation through the Renewable Energy Production Incentive.† This program is authorized through fiscal year 2026 but must be funded annually through Department of Energy appropriations.

However, witnesses at the Commission’s hearing suggested that a federal renewable portfolio standard, similar to those now in use in some of the states, would be a key step toward developing more domestic manufacturing. Such an action would increase the demand for renewable sources of electricity and, eventually, the supply, according to Ethan Zindler, from Bloomberg New Energy Finance.¹³⁸ “Such a demand-side policy, when coupled with supply-side supports in the stimulus, could trigger substantial additional investment in the U.S.,” Mr. Zindler said. “Clean energy projects would most likely be the first to benefit, as utilities would be under additional pressure to sign power purchase agreements with them to meet the national goals.”¹³⁹

Ohio’s Actions

Most of the renewable capacity currently in place in the United States is a result of state-level initiatives, the Congressional Research Service report notes. Among the states, 30 have a renewable portfolio standard, which requires a certain percentage of electricity to come from renewable sources.¹⁴⁰ The 2008 Ohio renewable portfolio standard requires that by 2025, 25 percent of all electricity sold in the state must come from renewable energy sources.¹⁴¹ The Ohio measure stipulates that half of the 25 percent must be generated within the state of Ohio. Furthermore, while 12.5 percent may come from sources such as nuclear power plants and

*For example, a solar plant on-site that generated 100 megawatts of electricity would receive credit for 200 megawatts.

†The Renewable Energy Production Incentive program was created in the Energy Policy Act of 1992 and amended in 2005.

clean coal technology that reduces carbon dioxide emissions, 12.5 percent must come from wind, solar, hydropower, geothermal, or biomass.

Ohio has looked to promote green technology production to bolster manufacturers in the state that can no longer compete with cheaper imports, particularly from China. Toledo, long known as “the glass city” for its production of flat, laminated, and tableware glass used in buildings and automobiles, is now dotted with solar panel makers operating from old glass factories.* There is “a wealth of experience and job skill just waiting to be harnessed,” David McCall, district one director of the United Steelworkers Union, testified before the Commission.¹⁴² To this end, the University of Toledo has created an incubator for such firms. The incubator supplies office space, financing, and expertise to startup companies. One such company is First Solar, now one of the top solar panel producers worldwide. “Green companies involved in solar, wind, and biomass products are well established in the region and many of the job skills needed for these industries have been developed by the region’s ties to the auto industry,” noted the *Toledo Blade*.¹⁴³

Chinese Manufacturing in Wind, Solar, and Batteries, and Government Support

China’s solar capacity was deliberately developed with the goal of exporting to overseas markets, in contrast to Chinese wind producers, who primarily service the booming domestic market for wind farms. During a July Commission visit to Zhong Hang Huitong Wind Power Equipment Company, a company official noted that only 10 percent of the company’s products are exported. However, China’s wind industry has recently begun to be seen as an exporting industry, officials confirmed. Despite only recently entering the export market, China is now the largest producer of wind turbines.¹⁴⁴

*China is also on track to make nearly half of the world’s wind turbines this year. China offers financial incentives for utilities to use wind power, which is less costly than solar power, and the country passed the United States last year as the world’s largest wind turbine market.*¹⁴⁵

Green energy programs benefit from Chinese high-technology and basic research programs.¹⁴⁶ China’s 11th Five Year Plan (2006–2010) built upon previous programs and made large-scale renewable energy products the focus of the basic research program.¹⁴⁷ China’s Renewable Energy Law of 2005 was another key piece of legislation designed to spur development and use of renewable energy. The law imposed a fee on all electricity users to subsidize the development of renewable energy sources.

*Witnesses generally agreed, however, that the United States has lost ground in traditional manufacturing as well as next-generation manufacturing sectors such as green technology. As an example, according to a recent *Wall Street Journal* article, Toledo had to rely on Chinese glass to complete the Toledo Museum of Art, because no domestic producer could fulfill the order for the curved glass panels called for in the design of the new pavilion on the art of glass-making. James T. Arredy, “In Toledo, the ‘Glass City,’ New Label: Made in China,” *Wall Street Journal*, August 29, 2010. <http://online.wsj.com/article/SB10001424052748703428604575418680197041878.html>.

Through these policies, China has invested in a comprehensive array of renewable energy products, including hydropower, wind power, solar power, and biomass. China's state-owned electricity sector has implemented a renewable portfolio standard. China has also required that wind and biomass each account for 30 gigawatts of power generation in China by 2020.¹⁴⁸ As a result of these policies and Chinese policy preferences for using domestic producers, Chinese production has steadily grown in domestic market share among these products.

Battery Technology and Electric Vehicles

U.S. and Chinese firms are both engaged in active research and development for electric vehicles and their fuel cells, or batteries. During a Commission visit, one Chinese producer demonstrated a state-of-the-art production facility. This company, Lishen Battery, a private company, has received \$14.9 million in startup subsidies from the Chinese government and was expecting a further \$104.6 million in the near term.

To spur the entry of electric vehicles into the market, China has created a mandate for increased vehicle emissions standards in the next ten years, with plans to reduce gasoline consumption by vehicles by 60 percent by 2020.¹⁴⁹ This is expected to spur the development of an electric vehicle market.

Recent reports have noted that China is considering a new technology transfer requirement for foreign automakers. China's Ministry of Industry and Information Technology is "preparing a 10-year plan aimed at turning China into 'the world's leader' in developing and producing battery-powered cars and hybrids," according to executives at four foreign car producers familiar with the plan.¹⁵⁰

China has offered subsidies to spur the development of the domestic electric vehicle sector, mainly through support for subnational government procurement.¹⁵¹ The government has launched a 10,000 vehicle demonstration project, and is also providing subsidies to help local government agencies purchase electric buses, taxis, and other public service vehicles. These subsidies will be up to \$7,300 (RMB 50,000) for hybrid vehicles and \$8,800 (RMB 60,000) for electric vehicles. Hybrid buses will receive up to \$61,456 (RMB 420,000), and electric buses will enjoy a subsidy of over \$73,000 (RMB 500,000). The Obama Administration has taken steps to spur production of electric vehicles and hybrids in the United States. This has taken the form of \$2.4 billion in Department of Energy grants included in the American Recovery and Reinvestment.^{152,153,154}

Section 301 Petition on Green Technology

On October 15, 2010, the Obama Administration announced it had launched a wide-ranging investigation into Chinese green technology policies.¹⁵⁵

The United Steelworkers Union had filed a petition under Section 301 of U.S. trade law requesting the Obama Administration challenge the subsidies that China extends to its energy sector, specifically those aids directed to alternative and clean energy. Their petition argues that a wide range of Chinese policies violate China's WTO commitments. The administration is required to file

a formal complaint against Chinese practices before the World Trade Organization at the end of a 90-day period if it verifies some or all of the allegations in the petition.¹⁵⁶

Among the charges in the petition are the following:

- China has substantial export restrictions on many raw materials, including rare earth metals through taxes, quotas, and quantitative restrictions. These restrictions place U.S. competitors at a disadvantage in global markets for goods that rely upon rare earth metals as a component, such as advanced batteries, solar panels, and wind turbines.
- China has provided grants and loans at discounted commercial rates through government programs and state-owned banks.
- China has favored wind power technology with export guarantees and insurance at below-market rates.
- China has required foreign firms to transfer technology in order to qualify for inclusion in joint ventures with Chinese companies and sales in the domestic market.

Illustrative List of Chinese Policies Promoting Green Technology

- *The Key Technology Research and Development Program* was established in 1982 and was China's first national research and development program aimed at dealing with environmental problems and pollution control. The program was funded to almost \$1 billion between 2001 and 2005.
- *The National High-Technology Development Program, or "863 Program,"* was created in 1986 to develop a range of technology. Green technology, including renewable energy, is now one of the top priorities for this program.
- *The National Basic Research Program, or "937 Program,"* is aimed at fundamental, basic research that complements technologies in the 863 Program. This program also has seen a substantial focus on green technology research at a more basic level.
- *The 2002 Government Procurement Law* promotes domestically sourced goods. State-owned companies dominate the energy sector.¹⁵⁷
- *The 2006 Renewable Energy Law* established a requirement that utilities pay full price for renewable energy sources while offering renewable-generated power to consumers at a discounted rate. The law was amended in 2009 to stipulate that Chinese energy suppliers were required to purchase all available renewable power generated in China, creating a further incentive to invest in the market.¹⁵⁸

**Illustrative List of Chinese Policies
Promoting Green Technology—Continued**

- *The 2007 Medium- and Long-Term Development Plan for Renewable Energy in China*, devised by the National Development and Reform Commission, stipulates that power companies that produce over 5 gigawatts of electricity include non-hydroelectric renewable energy amounting to 3 percent of total capacity by 2010 and 8 percent by 2020.
- *China's November 2008 stimulus plan* included a stipulation by nine government ministries that domestic products receive preferences. China later amended that requirement to stipulate that foreign-invested firms in China be granted the same preference as Chinese-owned companies after the October 2009 U.S.-China Joint Commission on Commerce and Trade.¹⁵⁹
- *China's two most recent five year plans*, the 10th Five Year Plan, from 2001 to 2005, and the 11th Five Year Plan, from 2006 to 2010, identified energy technologies as a key focus of both the 863 and the 937 programs. Hydrogen, fuel cells, energy efficiency, clean coal, and renewable energy received \$172 million in funding under the 11th Five Year Plan. That plan also made utility-scale renewable energy projects and new energy development the focus of the 937 Program.

Implications for the United States

In the area of alternative energy, China is following a familiar pattern of choosing an industry sector and showering it with a comprehensive mixture of subsidies and incentives. In this case, China also intends to establish certain alternative energy industries as “national champions” able to dominate world export markets. China has already developed the world’s largest manufacturing capacity in solar panels. Its capacity is far larger than that needed to satisfy domestic demand; 90 percent of the solar panels manufactured in China are exported. China also has a large number of installed wind turbines and is rapidly developing new technology for a growing global market. China’s domestic wind turbine industry operates behind a protectionist barrier. Only the largest wind turbines may be installed in China. This excludes many U.S. and European turbines, which are typically smaller.

The state government in Ohio has made solar panel technology a high priority. Like several other states, Ohio seeks to replace jobs lost in other manufacturing industries—notably glass, steel, and autos—with jobs in alternative energy, including manufacturing, installation, and maintenance of solar panels and wind turbines. Yet the United States and states such as Ohio are outmatched by China’s comprehensive programs of subsidies and domestic market protections.

In the context of previous health and safety problems with Chinese imports, renewable energy products from China, in particular battery cells, should be carefully evaluated for possible adverse health implications related to insufficient quality control.

Conclusions

- China is developing a leading wind turbine and solar panel manufacturing sector. These sectors are intended to become the dominant world suppliers while serving China's growing domestic market.
- China has set ambitious goals for the level of solar, wind, and nuclear power generation through its Renewable Energy Law and 11th Five Year Plan. This effort includes a substantial renewable portfolio standard, requiring that China's power supply further diversify by 2010 to emphasize noncoal and nonnuclear power sources.
- China has a well-developed, long-term strategy for investment in the green technology manufacturing sector, which gives it a competitive advantage.
- Ohio is one of 30 states that have adopted renewable portfolio standards designed to spur the deployment of renewable energy projects.

RECOMMENDATIONS

China's Environmental and Green Energy Policies

- The Commission recommends that Congress urge the administration to seek from China more accurate reporting of its energy use and the resulting environmental effects, including its carbon dioxide emissions. The Commission further recommends that Congress encourage the administration to enhance cooperation with China to more effectively collect this information.
- The Commission recommends that Congress identify and assess the benefits and disadvantages of bilateral and multilateral cooperation between the United States and China on green energy and the environment. In its assessment, Congress should examine whether the intellectual property rights of U.S. companies are being protected.
- The Commission recommends that Congress urge the administration to work with the United Nations to revise its classification of China as a developing country.
- The Commission recommends that Congress encourage the administration to include U.S. friends and allies in the developing world in its discussions with China on its clean energy and climate change policies.

U.S. and Chinese Efforts to Promote Solar and Wind Energy Manufacturing

- The Commission recommends that if the United States is to compete successfully in green technology manufacturing, Congress should examine domestic programs available to U.S. producers to ensure that these policies are an adequate response to China's strategic promotion of the green technology sector.
- The Commission recommends that Congress urge the administration to continue to press China to ensure that China's market is open to imported green technology products, including solar, wind, and battery products.
- The Commission recommends that Congress assess differing policies in the United States and China on trade and tariffs in the green technology sector with an aim to maximize U.S. competitiveness.

APPENDIX A
MAJOR U.S.-CHINA CLEAN ENERGY
COOPERATION INITIATIVES SINCE 2008

Initiative	Chinese body	U.S. body	Description
U.S.-China Clean Energy Research Center	Ministry of Science and Technology; National Energy Agency	Department of Energy	Research center focusing on developing energy efficiency, clean coal, and clean vehicle technologies, including carbon capture and storage
U.S.-China Electric Vehicles Initiative	Various public and private entities	Various public and private entities	Includes joint standards development for electric vehicles, demonstration projects in China, creation of a research and development and manufacturing roadmap, and public education projects
U.S.-China Energy Cooperation Program	Various public and private entities	Various public and private entities	Private sector money for work in China on renewables, smart grid, clean transportation, green buildings, clean coal, combined heat and power, and energy efficiency
U.S.-China Renewable Energy Partnership	Various public and private entities	Various public and private entities	Collaboration on advanced wind, biofuels, solar, and grid technologies while expanding trade in these sectors through an annual U.S.-China Renewable Energy Forum
Memorandum of Cooperation on monitoring, reporting, and verifying environmental data	National Development and Reform Commission	Environmental Protection Agency	Capacity-building for China to monitor and report its greenhouse gas emissions, so it can make its emissions data verifiable on an international level
21st Century Coal	Various public and private entities	Various public and private entities	Joint ventures and other public-private partnerships on clean coal, including carbon capture and near-zero emissions coal plants
GreenGen Company	Eight Chinese coal companies	Peabody Energy Corp.	\$1 billion joint venture to advance near-zero emissions coal power using hydrogen production and carbon capture and storage
FutureGen Industrial Alliance, Inc.	China Huaneng Group	Department of Energy and five U.S. energy companies	Multinational public-private partnership for clean coal to build a first-of-its-kind, coal-fueled, 275-megawatt technology prototype that achieves near-zero emissions with carbon capture and storage

Source: The White House, U.S. Office of the Press Secretary, "U.S.-China Clean Energy Announcements," November 17, 2009. <http://www.whitehouse.gov/the-press-office/us-china-clean-energy-announcements>.

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CHAPTER 5

CHINA AND THE INTERNET

SECTION 1: CHINA'S DOMESTIC INTERNET CENSORSHIP ACTIVITIES

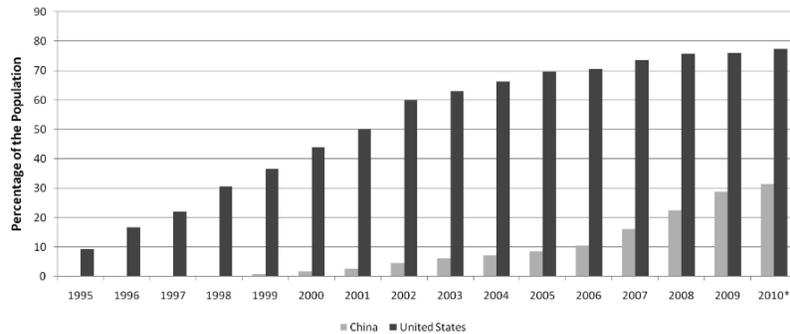
Introduction

The Commission has previously noted that China employs one of the largest and most sophisticated Internet content filtering systems in the world.¹ Developments in 2010 reinforce the evidence that pervasive online censorship and restrictions on speech remain the norm in China. These censorship measures, combined with efforts to direct the nature of discussions on the Internet, play an increasingly prominent role in Chinese authorities' governing strategy. Key documents released in 2010 articulate this strategy and include other information about the Chinese government's policies and approach to the Internet. Several of China's recent Internet-related laws and regulations that affect speech and expression on the Internet provide greater detail. Moreover, the private sector in China plays a key role in Internet control and management. This section includes an illustrative case study about the Chinese search engine Baidu, an important arbiter of the information accessible to Internet users in China. After covering each of these developments in China's censorship regime, the section concludes by enumerating some of the implications for the United States.

Developments in China's Information and Communications Environment

In 2010, China continued its sustained, high-level rate of investment in information and communications technology.* China has the most Internet users in the world, reaching 420 million by mid-2010—including 364 million with broadband connections.² (See figure 1 for a comparison of the quantity of Internet users in China and the United States.) Cellular telephone adoption rates have increased in kind, with over 800 million subscribers by midyear, including 25.2 million users with web browsing-capable third generation service.³

*This textbox emphasizes China's information and communications technology developments with respect to connectivity rather than equipment. It bears mentioning, however, that China has also made substantial progress with respect to computer-related hardware used in advanced computing systems. For example, a Chinese supercomputer recently ranked as the fastest in the world, marking the first time a Chinese machine surpassed the most powerful U.S. supercomputer. See Ashlee Vance, "China Wrests Supercomputer Title from U.S." *New York Times*, October 28, 2010. <http://www.nytimes.com/2010/10/28/technology/28compute.html>.

Figure 1: Internet Users in China and the United States, 1995–2010*

* Although China's population of Internet users is far greater than the entire population of the United States, Internet access as a percentage of the population is still substantially lower in China. Figure 1 excludes mobile devices. Numbers for 2010 are accurate through June.

Sources: International Telecommunication Union, "World Telecommunication/ICT [information and communications technology] Indicators Database" (Geneva, Switzerland: 2008). <http://www.itu.int/ITU-D/ict/>; China Internet Network Information Center, "Internet Statistics," June 30, 2010. <http://www.cnnic.cn/en/index/00/index.htm>; State Council Information Office White Paper, "China's Internet Status" (Beijing: June 2010). <http://www.scio.gov.cn/zxbd/wz/201006/t660625.htm>; Central Intelligence Agency (CIA), *CIA World Factbook*, "China" (Langley, VA: July 2010). <https://www.cia.gov/library/publications/the-world-factbook/geos/ch.html>.

The Internet and Governance in China

China's leadership, at all levels of the government, increasingly uses the Internet to interact with the Chinese people. This practice, interwoven with strict censorship controls, affords the government the ability to allow a controlled online debate about certain issues, especially those that do not relate to China's political situation. The government then leverages what it learns from following this debate to construct policies that aim to undercut the most serious irritants to domestic stability. Rebecca MacKinnon, then visiting fellow at Princeton University's Center for Information Technology Policy, testified to the Commission that this trend constitutes a new form of governance that she calls "networked authoritarianism." In describing this concept, she said that:

this new form of Internet-age authoritarianism embraces the reality that people cannot be prevented from accessing and creating a broad range of Internet content. Networked authoritarianism accepts a lot more give-and-take between government and citizens than a pre-Internet authoritarian regime. The regime uses the Internet not only to extend its control but also to enhance its legitimacy. While one party remains in control, a wide range of conversations about the country's problems rage on websites and social networking services. The government follows online chatter, and sometimes people are even able to use the Internet to call attention to social problems or injustices and even manage to have an impact on government policies.

Ms. MacKinnon went on to explain that:

As a result, average people with Internet or mobile access have a much greater sense of freedom—and may even feel like they can influence government behavior—in ways that weren't possible under classic authoritarianism. It also makes most people a lot less likely to join a movement calling for radical political change. Meanwhile, the government exercises targeted censorship, focusing on activities that pose the greatest threat to the regime's power. It also devotes considerable resources to seeding and manipulating the nation's online discourse about domestic and international events.⁴

To these ends, the Chinese government has employed a number of tools that, at least to some extent, facilitate discourse between Chinese Internet users and the country's top leadership. In recent years, China's Congresses (the National People's Congress and the National People's Political Consultative Congress) have collected millions of comments through the Internet prior to their yearly sessions. Chinese President Hu Jintao and Premier Wen Jiabao have both communicated to China's Internet users through interactive chat sessions and message boards on websites for major, state-run news sites.⁵

One such tool surfaced in September 2010 when the Chinese Communist Party's official media outlet, the *People's Daily*, introduced a new website feature called "Direct Line to Zhongnanhai." The site, whose name references the compound that houses China's president and other important Communist Party figures, allows Internet users to post individual messages to the country's top leadership. Public relations consultant Dong Guanpeng, who has served as an advisor to the Chinese government, called the site a publicity effort.⁶ Another public relations expert who has worked with the Chinese government, Scott Kronick, acknowledged the site's functional impracticality.⁷ That the site received almost 40,000 messages directed to President Hu during its first day of operation indicates the high level of demand for such a service. But perhaps the most illustrative part of the site is the guidelines for permissible messages, which specify 26 broad content restrictions, including: "That which harms the state's honor or interests"; and "That which undermines state policy on religion or advocates heretical organizations or feudal superstitions." These guidelines serve as a window into the government's efforts to control the boundaries and nature of discussions online.⁸

Chinese authorities supplement these high-profile features with numerous other special sites that, though more modest in scope, also serve to engage Chinese citizens, often at the local levels. According to China's 2010 white paper on the Internet (see below), since the nation launched an initiative called the Government Online Project in the mid-1990s, Chinese authorities have created more than 45,000 government portals. These portals include sites for "[75] central and state organs, 32 provincial governments, and 333 prefectural governments and over 80 [percent of] county-level governments." Although the portals generally aim to provide citizens with services, a high-ranking official at China's State Council Information Office (otherwise known as the Office of Foreign Propaganda)⁹ recently acknowledged in a speech about the Internet

that “[g]overnment agencies at all levels and in all regions have gradually built mechanisms to guide public opinion through integrating the functions of propaganda departments and actual work departments.”* In other words, according to this model, citizens who access a local government website to find out about government projects should also be exposed to the party’s latest propaganda themes.

Selective Censorship in Practice

In testimony to the Commission, Congressman Chris Smith recounted to the Commission specific examples of this censorship in practice from a visit to China with Congressman Frank Wolf prior to the 2008 Beijing Olympic Games. At that time, Representative Smith discovered that his own website, along with Representative Wolf’s, was inaccessible from the Chinese mainland. Representative Smith noted that Chinese censors also blocked the site for Radio Free Asia and all materials related to the Dalai Lama.¹⁰

The congressman cited an example of how China’s censorship and propaganda efforts are finely tuned to shield the Chinese Communist Party from criticism. Specifically, Representative Smith conducted an online search for materials by Manfred Nowak, United Nations (UN) Special Rapporteur on Torture. Mr. Nowak’s report about the treatment of detainees at Guantanamo Bay was available to Chinese Internet users; a separate report that found widespread torture within China, however, was not.¹¹

Commenting on the selective nature of China’s Internet censorship practices, Ms. MacKinnon testified that “[i]t’s not that [China’s] government is controlling everything. But they’re controlling [access to information] enough that they’re preventing any serious challenge to the Communist Party’s authority.”¹²

Developments in China’s Internet Policy

In 2010, the world gained two important windows into the Chinese government’s views about the Internet. First, the Chinese government detailed its policies on a range of Internet-related issues through an official white paper. The paper appears to be designed primarily to signal policy positions and preferences to foreign audiences. Second, two versions (an original version and a censored version) of a speech about the Internet in China by a key Chinese Communist Party propaganda official appeared online. A comparison of these two documents yields insight into the Chinese government’s actual views on Internet-related topics, including the areas the government deems most sensitive.

*This speech is discussed in the following subsection, “Developments in Internet Policy.” For the speech itself, see Wang Chen, “Concerning the Development of Our Country’s Internet” (speech before the Standing Committee of the National People’s Congress, Beijing, April 29, 2010). http://www.hrichina.org/public/contents/article?revision_id=175119&item_id=175084.

Internet White Paper

In June 2010, China's State Council Information Office released a white paper entitled *The Internet in China* that details many of China's numerous laws and regulations. Analysis of the white paper offers insight into the Chinese government's general views on a range of Internet-related issues.¹³ The document fully articulates and explains the government's "basic policy regarding the Internet," summarized as "active use, scientific development, law-based administration and ensured security." According to the text, it aims to provide "an overall picture" about "the true situation of the Internet in China."¹⁴ Specifically, the paper touts the Chinese government's efforts to "spur the development" of the Internet, promote its use, and guarantee citizens' freedom of speech on the medium. It also intends to explain China's Internet administration practices, security initiatives, and efforts to facilitate Internet-related international exchange programs. Several of these themes bear closer examination.

The paper suggests twin imperatives in China's approach to the Internet: swift development and active control. Ms. MacKinnon testified to the Commission that the paper explains that "the rapid, nationwide expansion of Internet and mobile penetration is a strategic priority" for China. This is in part due to the recognition that "[t]he development of a vibrant indigenous Internet and telecommunications sector is critical for China's long-term global economic competitiveness," said Ms. MacKinnon. At the same time, those involved with the Internet in China "are fully expected to support and reinforce domestic political stability and to ensure that the Internet and communications technologies . . . will not be used in a manner that threatens Communist Party rule."¹⁵

One of the white paper's defining features is the repeated assertion about the Chinese government's commitment to Internet freedoms. Citing constitutional protections, the paper states plainly that "Chinese citizens fully enjoy freedom of speech on the Internet."¹⁶ Although the paper offers no immediate qualifiers, it later states that China's:

*laws and regulations clearly prohibit the spread of information that contains contents subverting state power, undermining national unity, infringing upon national honor and interest, inciting ethnic hatred and secession, advocating heresy, pornography, violence, terror, and other information that infringes upon the legitimate interests of others.*¹⁷*

Finally, the paper reveals China's discomfort with perceived U.S. dominance in Internet administration organizations. One organiza-

*At other times, the paper notes additional restrictions, such as "no organization or individual may produce, duplicate, announce or disseminate information having the following contents: being against the cardinal principles set forth in the Constitution; endangering state security, divulging state secrets, subverting state power and jeopardizing national unification; damaging state honor and interests; instigating ethnic hatred or discrimination and jeopardizing ethnic unity; jeopardizing state religious policy, propagating heretical or superstitious ideas; spreading rumors, disrupting social order and stability; disseminating obscenity, pornography, gambling, violence, brutality and terror or abetting crime; humiliating or slandering others, trespassing on the lawful rights and interests of others; and other contents forbidden by laws and administrative regulations." Information Office of the State Council, "Section V," *The Internet in China* (Beijing: June 8, 2010). http://english.gov.cn/2010-06/08/content_1622956_7.htm.

tion in particular is the Internet Corporation of Assigned Names and Numbers (ICANN),* which provides regulations and standards for the Internet. The Chinese government advocates for a greater role for international institutions in Internet governance. Specifically, the paper states that “China supports the establishment of an authoritative and just international Internet administration organization under the UN system through democratic procedures on a worldwide scale.” Moreover:

China maintains that all countries have equal rights in participating in the administration of the fundamental international resources of the Internet, and a multilateral and transparent allocation system should be established on the basis of the current management mode, so as to allocate those resources in a rational way and to promote the balanced development of the global Internet industry.^{18 †}

The Internet and Propaganda

On April 29, 2010, the State Council Information Office’s Wang Chen, reportedly “the highest government official responsible for managing online information in China” and “the Party’s top official in charge of external propaganda work,” delivered a detailed speech about the Internet to the Standing Committee of the National People’s Congress.^{19 ‡} On May 4, the text of the speech, which contained apparently sensitive views, was posted on the State Council Information Office’s website. The text was quickly removed and replaced the following day with an altered version. However, alert readers were able to preserve a version of the original and later made it available to the public.§ A comparison of these documents sheds light on the Chinese Communist Party’s internal views on

*The Internet Corporation of Assigned Names and Numbers is a nonprofit, public benefit, private-public partnership created in 1998 through a memorandum of understanding with the U.S. Department of Commerce. For more information, see [icann.org](http://www.icann.org), “ICANN Factsheet,” undated. <http://www.icann.org/en/factsheets/fact-sheet.html>.

† This statement echoes concerns surfaced by Chinese officials in other forums. A January 2010 article in China’s official English-language newspaper, the *China Daily*, provides a more pointed description about Beijing’s concerns: “The control of the Internet plays a strategic role for US. Using the internet, the US can intercept information via the net, export US values and opinions, support a ‘Color Revolution,’ feed the opposition powers and rebels against anti-US governments, interfere with other countries’ internal affairs and make proactive attacks on enemy’s communication and directing networks [sic].” The Chinese government almost certainly timed the release of this article to coincide with a speech about Internet freedom delivered the same day by U.S. Secretary of State Hillary Clinton. *China Daily*, “Comment: Internet—New shot in the arm for US hegemony,” January 22, 2010. http://www.chinadaily.com.cn/china/2010-01/22/content_9364327.htm.

‡ Mr. Wang is a member of the Central Committee of the Chinese Communist Party. According to the speech text, Mr. Wang is also simultaneously deputy director, Propaganda Department; Chinese Communist Party director, External Propaganda Department; and Chinese Communist Party director, State Council Information Office. Lending credence to the assertion that Mr. Wang is perhaps the top official in China with respect to the Internet, Mr. Wang appeared to take a leading role in managing the controversy that followed from Google’s claims in early 2010 about having been targeted by Chinese hackers. See, for example, Chris Buckley, “China official’s comments on Internet control,” Reuters, January 14, 2010. <http://in.reuters.com/article/idUSTR60DOJ20100114>.

§ For more detailed information about this incident, see Human Rights in China, “How the Chinese Authorities View the Internet: Three Narratives,” undated. http://www.hrichina.org/publiccontents/article?revision_id=175069&item_id=175068. For the full text of the speech, including redactions and insertions, see Wang Chen, “Concerning the Development of Our Country’s Internet” (speech before the Standing Committee of the National People’s Congress, Beijing, April 29, 2010). http://www.hrichina.org/publiccontents/article?revision_id=175119&item_id=175084.

the Internet as it relates to China. Several key themes from the redacted portion of the text bear mentioning.

First, according to Mr. Wang, the Internet presents a new front to advance “propaganda and ideological work” as well as to “guide public opinion” domestically and abroad. The Chinese Communist Party, in attempts to influence public views, has used the Internet to control news and discussions about critical events like recent unrest in Tibet and Xinjiang, and the Sichuan earthquake. For influencing opinions outside China, the speech addresses the Internet as a way to “disseminate information to the outside world” through the nation’s “44 news and commercial websites with foreign language channels.” Mr. Wang cited these channels as an “important force in countering the hegemony of Western media and bolstering [China’s] cultural soft power.”²⁰ Mr. Wang later advocates for the use of these news sites to “initiate targeted international public opinion battles, and create an international public opinion environment that is objective, beneficial, and friendly to [China].”^{*21} Strict censorship of information related to the Nobel Peace Prize awarded to prominent Chinese dissident Liu Xiaobo, combined with select official Chinese news media statements aimed at discrediting the prize, serve as a recent example of China’s information controls in practice.²²

Second, China’s management of the Internet is multilayered and complex. This means that multiple stakeholders within the Chinese government bureaucracy approach the Internet from different angles. Namely:

*departments within the Ministry of Industry and Information Technology take responsibility for industrial development and professional management, departments within the Ministry of Public Security take responsibility for security supervision and fighting crimes,† and the external propaganda departments take the lead in information content management, with the participation of other departments, such as those of culture; radio, film, and television; press and publication; education; public health; and industry and commerce.*²³

Mr. Wang also notes the importance of the National People’s Congress, the audience for his speech, in creating laws that promote good government guidance.²⁴ The various stakeholders increasingly work well together, according to Mr. Wang, but improvements must be made.²⁵

Third, Mr. Wang cites the need for China to decrease or eliminate anonymity on the Internet. At several points, he mentions the need to create a “real name” system to achieve this end. Under this construct, Internet users would need to provide their full names, and possibly other personally identifiable information, in order to

^{*}For more on China’s efforts to expand news content to foreign markets, see John Pomfret, “From China’s mouth to Texans’ ears: Outreach includes small station in Galveston,” *Washington Post*, April 25, 2010. <http://www.washingtonpost.com/wp-dyn/content/article/2010/04/24/AR2010042402492.html>; and Isaac Stone Fish and Tony Dokoupil, “All the Propaganda That’s Fit to Print,” *Newsweek*, September 3, 2010. <http://www.newsweek.com/2010/09/03/is-china-s-xinhua-the-future-of-journalism.html>.

[†]The word “crimes” here should be understood to represent the rather expansive view of crime under Chinese law.

access or utilize Internet services. Specifically, Mr. Wang states that China:

*will make the Internet real name system a reality as soon as possible, implement a nationwide cell phone real name system, and gradually apply the real name registration system to online interactive processes.*²⁶

Mr. Wang also highlights several related initiatives that are already underway, including “real name” usage requirements for certain forum moderators, systems to remove anonymous comments from news stories, and an “identity authentication” system for online bulletin boards.²⁷

Fourth, new Internet-related technologies present challenges and opportunities for China. For example, in a part of the speech that was not redacted, Mr. Wang explains that “[t]he Internet is gradually becoming more deeply and broadly entrenched in the national economy.” He notes that this will positively impact China’s economic development model. However, he cautions that as technologies increasingly move toward multimedia like video, “supervision” will be more difficult.²⁸ In this vein, Mr. Wang highlights the positive and negative aspects of new trends like mobile Internet, the “Internet of Things,”* and “cloud computing.”† With respect to the latter, in a redacted portion of the text, Mr. Wang cites what he calls a popular saying in the Internet industry: “Whoever seizes that cloud will control the future.” Also redacted is a list of firms, including IBM, Google, and Yahoo!, that Mr. Wang credits with having conducted extensive research in the field of cloud computing.²⁹

Fifth, the speech reveals a nuanced view of the outside world’s effects on the Internet in China. On the one hand, Mr. Wang reveals a wariness of what he refers to as “overseas hostile forces” that would seek to infiltrate harmful information into China’s Internet space. He advocates for strengthening mechanisms to block the dissemination in China of such Internet content.³⁰ On the other hand, Mr. Wang acknowledges the need to “consult useful Internet management experience from overseas and integrate it into the actual development and management of [China’s] Internet.”³¹ In short, Mr. Wang’s view appears to be that foreign Internet content is undesirable, but foreign Internet management expertise is useful.

Developments in China’s Internet Laws and Regulations

The Chinese government maintains a complex Internet regulatory regime that authorities continued to adjust in 2010. At least 14 Chinese government entities have some form of regulatory, over-

*The “Internet of Things” is a concept where many or most devices, including things like kitchen appliances that we do not typically associate with the Internet, will be a node on a network and thus accessible and controllable from the Internet. For a frank assessment of the concept, see *Economist*, “The Difference Engine: Chattering Objects,” August 13, 2010. http://www.economist.com/blogs/babbage/2010/08/internet_things.

†“Cloud computing” is a concept that envisions most or all data eventually being stored remotely at large data centers rather than on personal devices. Although there are certain vulnerabilities associated with this architecture, it provides a number of convenient features, such as the ability to access data from multiple devices. For more information, see *Economist*, “Battle of the Clouds,” October 17, 2009. www.economist.com/node/14644393.

sight, or enforcement role responsible for the Internet in China.* China's lawmakers also directly issue laws that affect the Internet. Together, China has over 60 Internet-related regulations and laws, as of 2003, the last year for which a comprehensive count was available.³² Many of these laws and regulations are vague and include "catch-all" provisions. As a result, a complete sense of permissible conduct on the Internet in China remains difficult to discern. Although a full account of these laws and regulations is beyond the scope of this section, several of the most notable developments from the past year are detailed below.

Registration of Chinese Domains

In late 2009, Chinese authorities announced an overhaul in the requirements for Internet domain name registration. The China Internet Network Information Center, the entity that manages Chinese domains, said that potential registrants would need to submit a business license in order to register a Chinese domain. This regulation precipitated a simultaneous effort by China's Internet service providers to "review their client base for potentially fraudulent or 'harmful' individually owned sites."³³ The *Financial Times* noted that the term "harmful," in this context, serves as a "catch-all that covers everything from pornography to anti-state activity."³⁴ By early 2010, China's Internet service providers had shut down approximately 130,000 sites that did not have government documentation. Additional regulations issued in February required any individual seeking to register a domain name to apply in person and submit, among other things, a personal photograph.³⁵ These actions coincided with a broader push from Chinese authorities to control Internet content, which ultimately resulted in the blockage of independent domestic and foreign video and content-sharing websites such as BTChina.net and YouTube.com, respectively.³⁶

These new regulations drew different responses from outside observers. To avoid compliance with these strict rules, American domain retailer GoDaddy.com opted to halt sales on the Chinese domain.³⁷ Some commentators have opined that the new regulations will only serve to impose even more severe limitations on free speech in China.³⁸ However, some computer security analysts have noted that the new effort may reduce the prevalence of malware on Chinese Internet hosts and thereby improve Internet hygiene.³⁹

The Internet and State Secrets

On April 29, 2010, China's National People's Congress amended the country's 1988 State Secrets Law that placed new restrictions

*These entities include, but are not limited to, the Ministry of Industry and Information Technology; the Ministry of Culture; the Ministry of Public Security (as well as provincial and local Public Security Bureau counterparts); the State Administration of Industry and Commerce; the General Administration for Press and Publication; the State Administration for Radio, Film and Television; the State Council Information Office; the State Administration of Foreign Exchange; the Ministry of State Security; the National Administration for the Protection of State Secrets; the Ministry of Education; and the China Internet Network Information Center. See Anne-Marie Brady, *Marketing Dictatorship* (Lanham, MD: Rowman & Littlefield Publishers, Inc., 2008), pp. 128-9; Michael Wines, Sharon Lafraniere, and Jonathan Ansfield, "China's Censors Tackle and Trip Over the Internet," *New York Times*, April 7, 2010. <http://www.nytimes.com/2010/04/08/world/asia/08censor.html>; and Sohu.com Inc., "United States Securities and Exchange Commission Form 10-K," p. 12. http://www.sec.gov/Archives/edgar/data/1104188/000119312510042570/d10k.htm#toc10433_3.

and obligations on China's Internet and other network operators. According to testimony the Commission received from Mitchell Silk, partner at law firm Allen & Overy LLP, the amendment:

*places an affirmative obligation on Internet and other public network information operators and service providers to cooperate with public and national security authorities in the investigation of cases involving the disclosure of state secrets.*⁴⁰

This amendment receives fuller treatment in chapter 6, section 1, "State Secrets and Corporate Disclosures."

Regulations and Politics

Google and Beijing had a well-publicized standoff starting in January 2010, following revelations of a large-scale, sophisticated computer exploitation targeting the firm's networks in China. Investigations revealed that the perpetrators behind this incident, apparently based in China, sought both the firm's proprietary information and access to the e-mail accounts used by Chinese human rights activists. (For fuller treatment of this incident, see chap. 5, sec. 2, of this Report, "External Implications of China's Internet-Related Activities."). These findings led Google to announce that it would revisit its practices of complying with Chinese Internet censorship regulations, possibly ending the company's ability to operate its web search services in the country. As a result of the conflict, in subsequent months, industry analysts raised concerns about whether China would permit Google to continue to operate in the country other services with less political implications (including advertising and music functions), if the firm declined to comply with these regulations.

China's Ministry of Industry and Information Technology must certify websites and other Internet-related firms with an Internet Content Provider license. Google's license required renewal by mid-2010.⁴¹ Following Google's implementation of a system that automatically redirected Chinese users from Google's theretofore censored Chinese site ("google.cn") to Google's uncensored Hong Kong-based site ("google.com.hk"), Chinese authorities signaled that they might not grant the renewal.* This forced Google to devise a system whereby users had to manually redirect themselves from the Chinese site to the Hong Kong-based site in order to conduct searches. This measure apparently satisfied Chinese authorities, who later approved Google's license renewal application.⁴²

Some analysts speculated that Google's reliance on its Hong Kong-based site to serve users in mainland China would further weaken the site's position relative to competing firms, most notably Baidu.⁴³

*An underreported dimension of this solution (as well as the compromise solution discussed below) is that users in mainland China seeking to access the "uncensored" Hong Kong site would not get the uncensored content available to users in Hong Kong. "Offensive" search results would still be censored by China's national-level Internet filtering system. The key change here would be that the onus for censorship would fall on Chinese authorities rather than Google itself.

Case Study: Baidu

The Chinese government's rigorous censorship demands affect all private companies that operate in China. Ms. MacKinnon described how China's censorship regime, which she characterized as an analogue to the legal concept of "intermediary liability," essentially holds that "[a]ll Internet companies operating within Chinese jurisdiction, domestic or foreign, are held liable for everything appearing on their search engines, blogging platforms, and social networking services" as well as "everything their users discuss or organize through chat clients and messaging services." This functionally creates conditions where the Chinese government outsources Internet censorship to the private sector.⁴⁴ Even with this added burden, some search firms in China have earned massive profits.

Baidu.com, long China's most popular search engine, is subject to this censorship and plays a critical role as an arbiter of content available to China's Internet users. Founded in 1999, the company emulated Google's advertising-driven business model,⁴⁵ "unabashedly borrowed [its] design,"⁴⁶ and steadily grew to become the most popular site in China. Baidu's popularity continued to increase by offering some innovative services, leveraging the popularity of pirated files,⁴⁷ and creating Chinese replicas of popular and established web services, such as Wikipedia.⁴⁸ This case study examines Baidu's increasing market share, its status as one of China's leading censors and its overall relations with the state, and the role that American financiers played in the firm's rise and continue to play in the firm's operations.

Popularity

Baidu is the most visited website in China and the sixth most-visited website on the Internet, according to Alexa, a web traffic analysis firm.⁴⁹ A market analytics firm estimated that, in the first quarter of 2010, Baidu conducted 64 percent of all web searches in China.⁵⁰ By June 2010, a Baidu executive claimed that his company had a "76 percent share of China's PC [personal computer] search market."⁵¹ This substantial traffic increase reflects what *BusinessWeek* called Baidu's "near-monopoly status in China's Chinese-language search category" in the wake of Google's partial withdrawal from the Chinese search market in 2010.⁵² According to testimony from Rebecca Fannin, author and columnist, Google's lower profile within China "puts Baidu on a more powerful footing."⁵³ Ms. MacKinnon testified that given the site's market position, "Baidu is expected [to] lead the industry in cooperating with the government's political objectives."⁵⁴

Censorship and the State

From its founding, Baidu has aggressively censored results from its web searches.⁵⁵ According to recent reports, the company "employs teams of people who block and take down controversial" Internet content, including from its encyclopedia and blogging services.⁵⁶ The site has a reputation as being "the most proactive and restrictive online censor in the search arena."⁵⁷ With respect to blogs specifically, an analysis by Ms. MacKinnon demonstrated that Baidu is among the most aggressive censors of web content in China.⁵⁸ Representative Chris Smith testified to the Commission

that “Baidu is now very much a part” of China’s “comprehensive oppression” on the Internet.⁵⁹

In April 2009, an anonymous Baidu employee leaked on the Internet the firm’s most recent censorship guidelines, including prohibited search terms and web addresses. Blocked content included various message board services and terms like “AIDS,” “use of force to suppress,” “migrant workers,” “opposition,” and the names of jailed Chinese dissidents.⁶⁰ The Chinese government has commended Baidu and other Internet firms for their compliance with censorship rules and encouraged their leadership to send political messages. Ms. MacKinnon testified that:

Baidu [Chief Executive Officer] Robin Li, and nineteen other Chinese Internet company executives received the government’s ‘China Internet Self-Discipline Award’ for fostering ‘harmonious and healthy Internet development’ In the Chinese regulatory context, ‘healthy’ is a euphemism for ‘porn-free’ and ‘crime-free’; ‘Harmonious’ implies prevention of activity that would provoke social or political disharmony. In other words, the ‘Self-Discipline Award’ is China’s annual censorship award for companies.⁶¹

Some indicators suggest that Baidu censors begrudgingly. China’s censorship model dictates that the private sector, to include Baidu, must bear the cost of the censorship of materials hosted on (or displayed by) their site. This requires the development of special automated tools and large teams of human censors.⁶² In an unusual blog post dealing with censorship requirements, Sun Yunfeng, Baidu’s chief product designer, wrote that “every enterprise or every individual must dance with shackles. . . . This is the reality. Do as much as you can is the real attitude to have as a business or a person.” The post was soon removed.⁶³ In August, Baidu’s chief executive, Mr. Li, appeared to underscore this view when he reportedly said, “[i]t is not an advantage for Baidu because we have to block things. . . . It does not give us better user experience.”⁶⁴

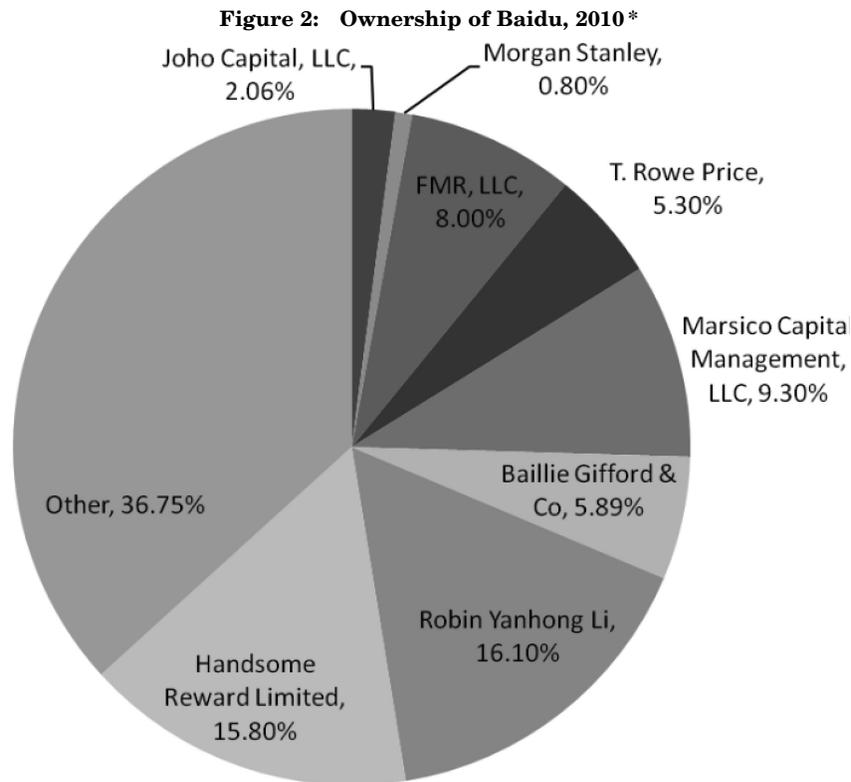
Background and Financing

Baidu’s initial investors were Americans and American firms. Among them were venture capital firms Draper Fisher Jurvetson, Integrity Partners, DFJ ePlanet Investors, IDG Ventures China, Sequoia Capital China, and Peninsula Capital.⁶⁵ In 2004, Gregory Penner, head of Peninsula Capital Fund I, LLC, part of Peninsula Capital, became a Baidu director, a position he retains today.⁶⁶ Since 2005, another American, William Decker, has also been a member of the board.⁶⁷ In addition to venture capital, Baidu secured a \$5 million investment from its American competitor, Google, which later sold its shares in June 2006 for \$60 million, a 1,100 percent return.⁶⁸ According to Ms. Fannin:

Baidu was molded the typical way of most Chinese startups during these early days of China’s entrepreneurial awakening with the rise of the Internet era. It was set up as a wholly owned foreign offshore holding company. Most of these . . . were based in the Cayman Islands or the Virgin Islands. This structure is a way for venture investors to put

capital (usually U.S. dollars) into a Chinese company. It also provides an avenue for getting investment returns from the Chinese company as shares [are] sold, typically through an initial public offering in New York, London, or Hong Kong.⁶⁹

In 2010, Providence Equity Partners invested \$50 million into Baidu's online video venture.⁷⁰ According to *Legal Week*, "Baidu's biggest [equity] holders are still largely American."⁷¹ This is demonstrated by the firm's official filings, which list numerous large institutional investors. (See figure 2.)



* Handsome Reward Limited is owned by Robin Yanhong Li. Figure represents ownership proportion of shares listed on U.S. exchanges.

Sources: Baidu Inc., "U.S. Securities and Exchange Commission File No: 005-81049-10609520," p. 2. <http://www.sec.gov/Archives/edgar/data/1106500/000117266110000213/bidu123109a1.txt>; Baidu Inc., "U.S. Securities and Exchange Commission File No: 005-81049-10948362," p. 2. <http://www.sec.gov/Archives/edgar/data/895421/000089542110000570/baidu5.txt>; Baidu Inc., "U.S. Securities and Exchange Commission File No: 005-81049-10604452," p. 2. <http://www.sec.gov/Archives/edgar/data/315066/000031506610001454/filing.txt>; Baidu Inc., "U.S. Securities and Exchange Commission File No: 005-81049-10592329," p. 2. <http://www.sec.gov/Archives/edgar/data/80255/000008025510000047/bidu13gdec09.txt>; Baidu Inc., "U.S. Securities and Exchange Commission File No: 005-81049-10589018," p. 2. <http://www.sec.gov/Archives/edgar/data/1055966/000119312510027386/dsc13g.htm>; Baidu Inc., "U.S. Securities and Exchange Commission File No: 005-81049-10579827," p. 2. <http://www.sec.gov/Archives/edgar/data/1088875/00010888751000001/baiducom12312009.txt>; and Baidu Inc., "U.S. Securities and Exchange Commission File No: 005-81049-10578805," p. 2. <http://www.sec.gov/Archives/edgar/data/1329099/000095012310009650/c95797sc13gza.htm>; Baidu Inc., "U.S. Securities and Exchange Commission File No: 005-81049-10578805," p. 3. <http://www.sec.gov/Archives/edgar/data/1329099/000095012310009650/c95797sc13gza.htm>.

Commenting on the role of U.S. capital in Baidu, Ms. MacKinnon testified that:

*the Chinese government has transferred much of the cost of censorship to the private sector. The American investment community has so far been willing to fund Chinese innovation in censorship technologies and systems without complaint or objection. Under such circumstances, Chinese industry leaders have little incentive and less encouragement to resist government demands that often contradict even China's own laws and constitution.*⁷²

Implications for the United States

In a 2010 speech on Internet freedom, Secretary of State Hillary Clinton made the case that Internet conditions abroad are important for the United States. Specifically, she observed that “[o]n their own, new technologies do not take sides in the struggle for freedom and progress, but the United States does.” She noted that, because of the Internet’s tremendous potential to improve people’s lives, “it’s critical that its users are assured certain basic freedoms. Freedom of expression is first among them.” She concluded that:

*pursuing the freedoms I've talked about today is, I believe, the right thing to do. But I also believe it's the smart thing to do. By advancing this agenda, we align our principles, our economic goals, and our strategic priorities.*⁷³

Secretary Clinton highlighted another relevant issue with broad implications for peace and security. She noted that “[h]istorically, asymmetrical access to information is one of the leading causes of interstate conflict.” Elaborating on this observation, Secretary Clinton stated that “[w]hen we face serious disputes or dangerous incidents, it’s critical that people on both sides of the problem have access to the same set of facts and opinions.”⁷⁴ This point perhaps has special relevance for U.S.-China relations. It is unclear that the Chinese people would be afforded access to U.S. perspectives in the event of an incident between the two countries, such as the 2001 collision of a Chinese fighter jet with an American naval reconnaissance aircraft. The absence of such access adds a destabilizing dimension to the bilateral relationship.

It is also becoming increasingly apparent that censorship has implications for trade between nations. A Google official in 2010 pointed out that free trade principles should clearly apply to the Internet. Many U.S. firms deal strictly with information; any hindrance to their operations abroad should be treated as seriously as obstructions to taking traditional exports to market. The official observed that if a foreign country placed broad restrictions on “physical trade, we’d all be saying this violates trade agreements. If you want to be part of the community of free trade, you have to let the Internet be open.”⁷⁵

Finally, while many Americans praised Google for its decision to discontinue censorship of its search results in China, other Americans have continued to subsidize and profit from censorship practices in China.

Conclusions

- Chinese authorities have managed skillfully to balance their perceived need to limit speech on the Internet with the Chinese public's need to feel a part of an ongoing and participatory discourse about the country's social conditions. The Chinese government has used all available means to bind the content and scope of this conversation. At the same time, the government has been selectively responsive and has attempted to remediate some of the nation's most serious irritants in order for the Chinese Communist Party to maintain power. This confluence of conditions might be termed "network authoritarianism."
- China's leadership views information and communications technologies as presenting opportunities for economic development and enabling the distribution of propaganda at home and abroad in support of Chinese Communist Party interests. Conversely, the Chinese government views these technologies as a threat to regime stability and the Party's ability to control the flow of information and freedom of expression.
- Beijing continues to institutionalize and promote strict Internet governance through numerous laws and regulations as well as strict oversight and enforcement from government organizations. Chinese authorities also influence and guide the nature and tone of discussions online.
- The Chinese government outsources much of its censorship activities to the private sector. The popular search engine Baidu serves as a useful case study of this dynamic. The firm, established in part with the help of U.S. capital, plays a key role in China's censorship regime. With Google's smaller presence in China, Baidu and its American investors stand to reap greater profits.
- China's Internet censorship activities have broad implications for the United States. Impeded information flows are destabilizing, particularly in the context of a crisis. Moreover, censorship in some respects is actually a barrier to trade, thereby undermining U.S. businesses' ability to operate in China.

SECTION 2: EXTERNAL IMPLICATIONS OF CHINA'S INTERNET-RELATED ACTIVITIES

Introduction

China continues to engage in Internet-related activities that have broad implications for U.S. interests. In January, Google announced that a sweeping computer network exploitation campaign had compromised the firm's operations in China. Other accounts of malicious computer activity tied to China continue to surface. In several cases, Chinese telecommunications entities disrupted or otherwise impacted U.S. Internet traffic. Chinese authorities in 2010 also rolled out a series of new Internet and communication technology-related rules and regulations that promote domestic and undermine foreign firms. After a brief discussion of the cybersecurity environment, this section of the Commission's Report seeks to provide an overview of each of the aforementioned issues.

Trends in the Cybersecurity Environment

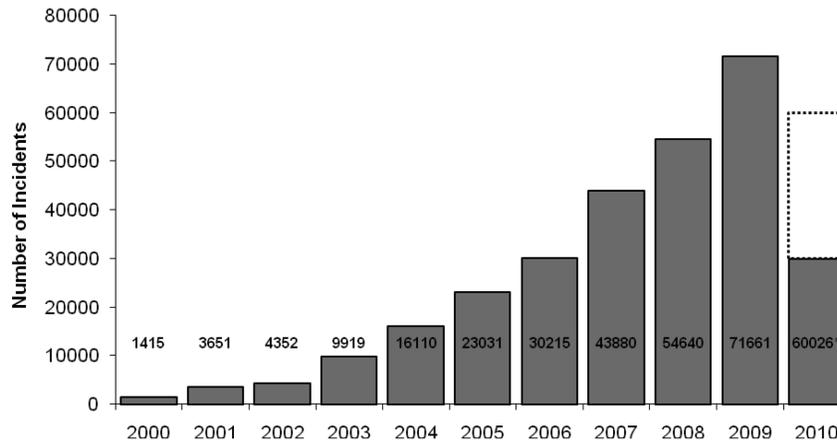
Discerning trends in the cybersecurity environment remains difficult given the problem's magnitude and other obstacles such as persistent underreporting of events. Even incidents of malicious cyber activity targeting the U.S. government cannot easily be quantified due to classification restrictions and fragmentary reporting. The Commission therefore uses Department of Defense figures as one indicator of trends in the threat environment. These figures are relevant because, as the Department of Defense has noted, China poses serious challenges with respect to network exploitation and attack. For example, in an annual report to Congress released in August, the Department of Defense stated that in recent years:

numerous computer systems around the world, including those owned by the U.S. government, continued to be the target of intrusions that appear to have originated within the [People's Republic of China]. These intrusions focused on exfiltrating information, some of which could be of strategic or military utility. The accesses and skills required for these intrusions are similar to those necessary to conduct computer network attacks. It remains unclear if these intrusions were conducted by, or with the endorsement of, the [People's Liberation Army] or other elements of the [People's Republic of China] government. However, developing capabilities for cyberwarfare is consistent with authoritative [People's Liberation Army] military writings.⁷⁶

Figure 1, below, demonstrates the volume of malicious computer activity against Department of Defense information systems over

the past decade. Note that not all of the incidents depicted below specifically relate to China; the department has not made available that level of detail.

Figure 1: Department of Defense Reported Incidents of Malicious Cyber Activity, 2000–2009, with Projection for 2010



*This figure represents a projection based on incidents logged from January 1, 2010, to June 30, 2010. The projection assumes a constant rate of malicious activity throughout the year.

Sources: U.S.-China Economic and Security Review Commission, *Hearing on China's Proliferation Practices, and the Development of its Cyber and Space Warfare Capabilities*, testimony of Gary McAlum, May 20, 2008; Name withheld (staff member, U.S. Strategic Command), telephone interview with Commission staff, August 28, 2009; Name withheld (staff member, U.S. Cyber Command), e-mail interview with Commission staff, August 17, 2010.

If the rate of malicious activity from the first half of this year continues through the end of the year, 2010 could be the first year in a decade in which the quantity of logged events declines. This may or may not represent a decrease in the volume of attempts to penetrate defense and military networks. The Defense Department explained the lower figures as resulting from measures taken to mitigate threats before they reach the threshold that merits an incident log entry. Specifically, the department cited “greater visibility of threat activity, vulnerability, and ultimately risk by leaders at all levels across [the Department of Defense]” in addition to greater resources, enhanced perimeter defenses, and the establishment of U.S. Cyber Command.⁷⁷

Operation “Aurora”

In early 2010, reports emerged of a large-scale cyber attack against Google’s operations in China. In January, Google’s chief legal officer announced that in mid-December 2009, Google had “detected a highly sophisticated and targeted attack on [its] corporate infrastructure originating from China that resulted in the theft of intellectual property,”⁷⁸ later reported to be the firm’s in-

valuable source code.*⁷⁹ Evidence from the ensuing investigation suggested that another “primary goal of the attackers was accessing the [Google e-mail] accounts of Chinese human rights activists.”⁸⁰ Investigators determined that the breach constituted one component of a larger computer network exploitation campaign targeting “a wide range of businesses—including the Internet, finance, technology, media, and chemical sectors,”⁸¹ with perhaps 33 or more other victim companies.† Computer security professionals now widely refer to this campaign as “Operation ‘Aurora’” following revelations, based on technical indicators, that the perpetrators referred to the exploitation as such.⁸²

The penetrations, combined with the Chinese government’s increased restrictions on freedom of speech on the Internet, led Google “to conclude that [they] should review the feasibility of their business operations in China.”⁸³ According to Google’s official statement:

*We have decided we are no longer willing to continue censoring our results on Google.cn, and so over the next few weeks we will be discussing with the Chinese government the basis on which we could operate an unfiltered search engine within the law, if at all. We recognize that this may well mean having to shut down Google.cn, and potentially our offices in China.*⁸⁴

Google later announced that while it would maintain certain services in China, such as advertising, the firm would automatically redirect web search users from its mainland China site to its uncensored Hong Kong site.‡ Chinese authorities eventually deemed this interim solution unacceptable.⁸⁵ Ultimately, Google devised a system whereby users in mainland China would have to redirect themselves manually to the company’s Hong Kong site by clicking a hyperlink.⁸⁶ This solution evidently sufficed for Chinese regulators, who subsequently renewed in early July Google’s license to operate in China.⁸⁷ (For more information, see chap. 5, sec. 5, “China’s Domestic Internet Censorship Practices.”)

Google’s initial announcement did not specifically attribute responsibility for the exploitation to the Chinese government. The company did, however, refer its users to a number of reports, including the Commission’s 2009 Annual Report and Commission-sponsored research, that document the Chinese government’s role in advanced computer exploitation schemes. As the Commission noted in its 2009 Report, this role varies from direct participation to some degree of sponsorship or simply acquiescence.⁸⁸ Other firms involved in the Aurora investigation provided more thorough details about those responsible. Security firm Secureworks, for example, determined that the malware used in the exploitation (described below) was written in Chinese and, at the time Google disclosed Operation Aurora, discussions about the code appeared only

*The term “source code” refers to the set of instructions that compose computer software programs.

†Google’s initial announcement cited approximately 20 other victim firms. Reports since then have placed the number substantially higher. See Kelly Jackson Higgins, “Flaws in the ‘Aurora’ Attacks,” *DarkReading*, January 25, 2010. http://www.darkreading.com/database_security/security/attacks/showArticle.jhtml?articleID=222500010.

‡Google’s mainland China site is Google.cn, and its Hong Kong site is Google.com.hk.

on Chinese-language websites.⁸⁹ Another security firm involved in the investigations, iDefense, went even further, stating that both the source Internet Protocol addresses and the servers used to facilitate the exploitation “correspond to a single foreign entity consisting either of agents of the Chinese state or proxies thereof.”⁹⁰ Researchers further traced the penetration to two schools in China, one of which has ties to the Chinese military.⁹¹

Operation Aurora’s perpetrators employed intelligence-gathering techniques and leveraged sophisticated exploits to compromise victims’ systems. According to Google’s information security manager, Operation Aurora specifically targeted certain Google employees in order to launch the exploitation. This effort included thorough reconnaissance of targeted Google employees such as the collection of data from their accounts on popular social networking sites like Twitter, Facebook, and LinkedIn. The perpetrators then, masquerading as an acquaintance, established a chat session with a targeted employee. In the course of this session, a Google employee clicked a hyperlink to an innocuous-looking photo-sharing website administered by Aurora’s perpetrators,⁹² reportedly hosted in Taiwan.⁹³ The site contained malicious code that automatically downloaded to the employee’s system.⁹⁴

This malware allowed the perpetrators to gain access to the victims’ username and password information. With these credentials, the perpetrators:

*set up a connection through a secure tunnel to the victim’s machine and used the employee’s credentials to gain access to other Google servers. . . . Once they gained super-user privileges, they installed a backdoor onto the server to view and steal files and attempt to stealthily gain access to other systems.*⁹⁵

Once inside the systems, Aurora’s perpetrators reportedly gained access to software-configuration management systems, which contain prized source code.⁹⁶ Remote activities in the exploitation, like the malicious photo-sharing site, appear to have been facilitated through servers outside China. A command-and-control server used by the perpetrators was also hosted in Taiwan.⁹⁷

Other Examples of Chinese-tied Computer Network Exploitation

Other reports about Chinese-backed malicious cyber activity persisted throughout 2010. Quantifying the pervasiveness of such malicious activity remains challenging, but one analysis revealed that over 28 percent of all targeted phishing e-mails originate in China.*⁹⁸ Anecdotal reports about the success of these activities continue to surface, some with compelling links to the Chinese gov-

*“Phishing” is “an attempt by an individual or group to solicit personal information from unsuspecting users by employing social engineering techniques. Phishing emails are crafted to appear as if they have been sent from a legitimate organization or known individual. These emails often attempt to entice users to click on a link that will take the user to a fraudulent web site that appears legitimate. The user then may be asked to provide personal information such as account usernames and passwords that can further expose them to future compromises. Additionally, these fraudulent web sites may contain malicious code.” U.S. Computer Emergency Readiness Team (U.S.-CERT), “Report Phishing.” http://www.us-cert.gov/nav/report_phishing.html.

ernment.⁹⁹ One exceptionally well-documented study of a cyber intrusion against the Indian government deserves further discussion.

In April 2010, the Information Warfare Monitor and the Shadowserver Foundation* released a detailed report called “Shadows in the Cloud” that describes an elaborate computer exploitation campaign. According to the report, a China-based computer espionage network targeted primarily Indian diplomatic missions and government entities; Indian national security and defense groups; Indian academics and journalists focused on China; and other political institutions in India, as well as the Office of His Holiness, the Dalai Lama.¹⁰⁰ The network also compromised computers in at least 35 other countries, including the United States.†

Although the full extent of the exploitation remains unknown, the investigators determined that those responsible successfully obtained sensitive files, apparently belonging to the Indian government. Files removed included “one document that appears to be encrypted diplomatic correspondence, two documents marked “SECRET,” six as “RESTRICTED,” and five as “CONFIDENTIAL.” These documents may constitute only a small portion of the files successfully exfiltrated in the course of this exploitation.¹⁰¹ The report does not expressly link this malicious activity to the Chinese government. The report’s authors, however, highlight the possibility of state involvement, citing the “obvious correlation to be drawn between the victims, the nature of the documents stolen, and the strategic interests of the Chinese state.” The analysis also suggests the possibility that agents of the state carried out the exploitation, perhaps “either by sub-contract or privateering.”¹⁰²

The “Shadows in the Cloud” case study demonstrates at least three important emerging trends in malicious cyber activity related to China:

- *Increasingly sophisticated exploitations:* The penetration was not state of the art but seemed to demonstrate a higher level of sophistication than those reported in previous studies.¹⁰³ The perpetrators apparently did not discover their own previously unknown exploits but instead used vulnerabilities that had only recently been revealed by others. Furthermore, tools to leverage these vulnerabilities were not widely available at the time of the exploitation.¹⁰⁴
- *Abuse of social media:* The people responsible for the penetrations exploited popular free web services—such as Twitter, Google Groups, Blogspot, Baidu Blogs, blog.com, and Yahoo! e-mail accounts—as part of the command-and-control infrastructure for their exploits.¹⁰⁵ Malicious actors can easily create ac-

* The Information Warfare Monitor (www.infowar-monitor.net) is a joint project between the Munk Centre for International Studies at the University of Toronto and the SecDev Group, a Canada-based computer security research and consulting organization. The Shadowserver Foundation (www.shadowserver.org) is a research organization comprised of information security professionals worldwide.

† Specifically, New York University and Honeywell, an organization involved in aerospace engineering and advanced materials research, seem to have been affected. These systems may have suffered “collateral compromise,” wherein malicious software compromises unintended nodes (e.g., by users remotely accessing targeted systems). Information Warfare Monitor and Shadowserver Foundation, “Shadows in the Cloud: Investigating Cyber Espionage 2.0,” April 6, 2010, pp. 28, 43. <http://shadows-in-the-cloud.net>.

counts at these sites, and traffic between them and the victims' computers looks innocuous to firewalls and network administrators.

- *Nexus with criminal software and techniques:* Some of the command-and-control servers used in this case have known ties to other malware operations.¹⁰⁶ These may be used for myriad other purposes, including criminal activities such as identity theft. The report's authors postulate that "political espionage networks may be deliberately exploiting criminal kits, techniques, and networks both to distance themselves from attribution and to strategically cultivate a climate of uncertainty."¹⁰⁷ According to the report, "murky relationships" between the Chinese state and the Chinese criminal underground mean that data gathered by the latter may end up in the "possession of some entity of the Chinese government."¹⁰⁸

Internet Traffic Manipulation

In early 2010, two incidents demonstrated that China has the ability to substantially manipulate data flows on the Internet. First, for several days in March, China's Internet controls censored U.S. Internet users. Second, in April, a Chinese Internet service provider briefly hijacked a large volume of Internet traffic. Computer security researchers observed both incidents but were not able to say conclusively whether the actions were intentional. Nonetheless, each incident demonstrates a capability that could possibly be used for malicious purposes.

Spillover of China's Internet Censorship Activities

In March 2010, reports surfaced that China's Internet censorship regime (known colloquially as "the Great Firewall")* temporarily affected Internet users outside of China.† Specifically, certain users in Chile and the United States who tried to access popular social media sites, including Twitter, YouTube, and Facebook, were denied access by being redirected to incorrect or nonexistent servers.¹⁰⁹ This incident, which relates to the Internet "Domain Name System" (see text box below), helps illustrate the implications of China's effort to impose "localized" restrictions to something as inherently global in scope as the Internet.

*The term "the Great Firewall" initially referenced China's early attempts to block Chinese Internet users' access to foreign websites. Another term, "the Golden Shield," references China's comprehensive efforts to censor Internet content. The former term is widely used in place of the latter. For more information about "the Golden Shield," see U.S.-China Economic and Security Review Commission, *2008 Report to Congress* (Washington, DC: U.S. Government Printing Office, 2008), pp 297–8; and Greg Walton, "China's Golden Shield" (Montreal, Canada: International Centre for Human Rights and Democratic Development, 2001), especially pp 14–7. http://www.dd-rd.ca/site/_PDF/publications/globalization/CGS_ENG.PDF.

†This is not the first time an incident like this has occurred. See, for example, Declan McCullagh, "How Pakistan knocked YouTube offline (and how to make sure it never happens again)," *cnet.com*, February 25, 2008. http://news.cnet.com/8301-10784_3-9878655-7.html#ixzz0zcR1AWUS.

Domain Name System Susceptible to Tampering

The Internet is underpinned by a system of unique numerical identifiers called Internet Protocol addresses (for example, 74.125.227.50). Recognizing that many long strings of numbers would be difficult for users to remember, the Internet's architects developed the "Domain Name System," which allows Internet Protocol addresses to be assigned unique domain names (for example, www.uscc.gov). The system is facilitated by Domain Name Servers that contain and distribute lists of Internet Protocol address and their associated domain names. (A frequently cited analogy here is that an Internet Protocol address is like a phone number, a domain name is like a person's name, and a Domain Name Server is like a phone book that allows one to look up a phone number based on a name.)

When a computer user attempts to visit a website by typing a domain name into a web browser, the Domain Name System activates and requests that a Domain Name Server look up that domain name's Internet Protocol address. The Domain Name Server relays the information, which allows the browser to locate the website on the Internet and establish a connection. The process is automated and extremely rapid.

Thirteen primary (or "root") Domain Name Servers form the backbone of the Internet. These servers maintain numerous physical clone-like iterations,* implemented to accommodate the growth in Internet use within the bounds of existing protocols.¹¹⁰ Trusted sources update and maintain these root servers and iterations, but each physically exists within a country, and many serve users outside that country. Therefore, data going to and from these servers must traverse local network infrastructure and, by extension, be subjected to domestic Internet control policies that may instruct the servers to send back incorrect responses. This can ultimately affect foreign Internet users' ability to connect to the websites they intend to visit.¹¹¹

Starting on March 24, 2010, when certain Internet users in the United States and Chile attempted to connect to popular social networking websites, their computers requested routine Internet Protocol information, and a Beijing-based Domain Name Server (a clone-like iteration of a Swedish root server)† replied with faulty responses.‡ As a result, these users were directed to incorrect servers, as if the users were trying to access restricted content from behind China's Great Firewall. These conditions persisted in some cases for several days before the administrators of the Sweden-based root server temporarily disabled requests to their Beijing server "clone."¹¹² The administrators eventually brought the server

*These iterations are otherwise referred to as "instances."

†The root server involved in this instance is administered by the firm Netnod. See "One of 13," *Netnod.se* (undated). http://www.netnod.se/dns_root_nameserver.shtml#.

‡Although responses ostensibly came from the Swedish root server iteration in Beijing, the actual response may have been generated by a component of China's Great Firewall.

instance back online, but computer researchers identified the same problem again in June.¹¹³

These incidents do not appear to be a deliberate act of cross-border censorship from China. Rather, because of vulnerabilities in the Internet's architecture, the faulty information likely resulted from an accidental "leak" of conditions intended only for a Chinese audience. Nonetheless, these events demonstrate the disregard networked systems have for national borders and illustrate ripple effects from China's elaborate censorship activities.

Interception of Internet Traffic

For a brief period in April 2010, a state-owned Chinese telecommunications firm "hijacked" massive volumes of Internet traffic.*¹¹⁴ Evidence related to this incident does not clearly indicate whether it was perpetrated intentionally and, if so, to what ends. However, computer security researchers have noted that the capability could enable severe malicious activities.¹¹⁵

Internet Routing Processes Susceptible to Manipulation

Internet browsing activities often employ numerous servers to facilitate the exchange of data. This process typically relies on trust-based transactions between each server involved. In order for a server to determine where to route data, the server will consult a "routing table" that maps paths from one point on the Internet to another. Servers issue these routing tables to "advertise" (that is, notify other servers) that they can provide an efficient path between servers.

If a computer user in California, for example, seeks to visit a website hosted in Texas, the data would likely make several "hops" (that is, transit multiple servers) along the way. Data are supposed to travel along the most efficient route. However, Internet infrastructure does not necessarily correlate to the geographical world in a predictable way, so it would not be completely unusual for data to transit a server physically located in Georgia, or some other somewhat removed location.

This process, however, is susceptible to manipulation. If a server in an out-of-the-way location, such as China, advertised a route that claimed to be the most efficient path to transfer data from California to Texas, other servers in the transaction might well pass those data across the Pacific for a hop in Beijing before the data ultimately reached their intended destination. While in Beijing, those data could conceivably be monitored, censored, or replaced with other data. This could take place quickly enough to go unnoticed by the computer user.

*This is not the first time an incident like this has occurred. See, for example, Todd Underwood, "Internet-Wide Catastrophe—Last Year," *Renesisys blog*, December 24, 2005. http://www.renesys.com/blog/2005/12/internetwide_nearcatastrophela.shtml. By way of comparison, the incident referenced therein affected a much greater volume of Internet traffic than the incident described above.

For about 18 minutes on April 8, 2010, China Telecom advertised erroneous network traffic routes that instructed U.S. and other foreign Internet traffic to travel through Chinese servers.* Other servers around the world quickly adopted these paths, routing all traffic to about 15 percent of the Internet's destinations through servers located in China. This incident affected traffic to and from U.S. government (.gov) and military (.mil) sites, including those for the Senate, the army, the navy, the marine corps, the air force, the office of secretary of Defense, the National Aeronautics and Space Administration, the Department of Commerce, the National Oceanic and Atmospheric Administration, and many others. Certain commercial websites were also affected, such as those for Dell, Yahoo!, Microsoft, and IBM.¹¹⁶

Although the Commission has no way to determine what, if anything, Chinese telecommunications firms did to the hijacked data, incidents of this nature could have a number of serious implications. This level of access could enable surveillance of specific users or sites.† It could disrupt a data transaction and prevent a user from establishing a connection with a site. It could even allow a diversion of data to somewhere that the user did not intend (for example, to a "spoofed" site). Arbor Networks Chief Security Officer Danny McPherson has explained that the volume of affected data here could have been intended to conceal one targeted attack.¹¹⁷ Perhaps most disconcertingly, as a result of the diffusion of Internet security certification authorities,‡ control over diverted data could possibly allow a telecommunications firm to compromise the integrity of supposedly secure encrypted sessions.§

New Government Regulations

The Chinese government in 2010 proposed and, in some cases, implemented information and communication technology-related laws and regulations with broad implications for China, the United States, and the rest of the world. These conventions, described below, directly affect norms related to computer security.

Encryption Information Provision

In May 2010, long-anticipated Chinese regulations requiring high-technology foreign firms to disclose proprietary information about their products came into effect. After a year of discussions, China's General Administration of Quality Supervision, Inspection and Quarantine officially proposed in 2008 a set of rules that would

*This type of attack is referred to alternatively as "IP [Internet Protocol] hijacking" or "prefix hijacking." Note that the erroneous data appear to have originated at a smaller Internet Service Provider, IDC China Telecommunication, and were subsequently propagated by China Telecom.

†There are unconfirmed reports that Chinese Internet Service Providers have engaged in such activities. See, for example, Oiwan Lam, "China: ISP level Gmail phishing," *Global Voices Online*, August 11, 2010. <http://advocacy.globalvoicesonline.org/2010/08/11/china-isp-level-gmail-phishing/>.

‡For a brief explanation of the vulnerabilities associated with the current Internet certificate authority regime, see Danny O'Brien, "The Internet's Secret Back Door," *Slate*, August 27, 2010. <http://www.slate.com/id/2265204/>. For a detailed description that relates specifically to China, see Seth Schoen, "Behind the Padlock Icon: Certificate Authorities' Mysterious Role in Internet Security," in *China Rights Forum no. 2 (2010)*, "China's Internet": *Staking Digital Ground* (New York: Human Rights in China). http://www.hrchina.org/public/contents/article?revision_id=175292&item_id=175290.

§This is referred to as a "man in the middle" attack. Dmitri Alperovitch (vice president, Threat Research, McAfee, Inc.), briefing to Commission staff, August 25, 2010.

compel makers of 13 categories of technology products, including intrusion detection systems, secure network routers, and certain firewall systems,¹¹⁸ to disclose sensitive cryptography information to Chinese authorities by May 2009 in order to be able to sell these products to anyone in China. Pushback from U.S. and European institutions reportedly convinced Chinese authorities at least to delay the implementation of these regulations by one year and to scale back requirements so as to cover only products procured by Chinese government entities.¹¹⁹

These revised regulations require firms to turn over “encryption algorithms, software source code and design specifications” to “government-connected testing laboratories,”¹²⁰ namely, the Certification and Accreditation Administration of China under China’s General Administration of Quality Supervision, Inspection and Quarantine.¹²¹ This presents several problems for U.S. high-technology industries:

- Required information constitutes sensitive trade secrets,¹²² and U.S. trade groups report that the “government panels that would review foreign products include employees of rival Chinese companies.”¹²³
- Compliance with the regulations would undermine other potential buyers’ trust in the products’ integrity.
- Access to the details of such sensitive encryption information would assist the Chinese government’s censorship regime¹²⁴ and likely boost its capacity to conduct computer network operations.

Taken together, these issues present a trade barrier that, perhaps by design, advantages Chinese firms over foreign competition.¹²⁵ According to a trade industry representative, no foreign firms had submitted to the certification process as of June 2010.¹²⁶

Multilevel Protection Scheme

Chinese authorities may also implement more drastic regulations requiring foreign high-technology firms to provide sensitive details about proprietary products in order to provide goods for any of China’s “strategic information systems.” This sweeping category includes any system related to:

*state affairs (party and government), finance, banking, tax administration, customs, audit administration, industry and commerce, social services, energy, transportation, national defense industry, and other information systems that are related to the national economy and peoples’ livelihood including education, state science and technology institutions, public telecommunications, television broadcasting and other basic information networks.*¹²⁷

Should the regulations come to fruition, foreign firms would need to submit for evaluation thorough information about components for any these systems. According to Dean Garfield, president and chief executive officer of the Information Technology Industry Council, such regulations would levy “completely unworkable testing requirements on nearly all high-tech products” to be sold in

China.¹²⁸ In order to safeguard intellectual property, most foreign firms would be unwilling to submit to such a process.¹²⁹ The regulations, according to the Associated Press, are “consistent with [Beijing’s] efforts to build up Chinese technology industries by shielding them from competition and pressing global rivals to hand over know-how.”¹³⁰

Implications for the United States

China’s actions with respect to the Internet in 2010 have several important implications for the United States. The “Aurora” campaign illustrates that actors within China, and with possible ties to the Chinese government, have used computer exploitation techniques to target the intellectual property of numerous American firms operating in China. To the extent that these penetrations are successful, they undermine the competitiveness of American industry. Chinese actors reportedly used similar, if less sophisticated, techniques recently to target the Indian government. A wide body of literature, including a notable Department of Defense report to Congress in 2010, suggests that actors within China target U.S. government institutions in a similar manner.

Several incidents in early 2010 demonstrate that, regardless of whether Chinese actors actually intended to manipulate U.S. and other foreign Internet traffic, China’s Internet engineers have the capability to do so. Although China is by no means alone in this regard, persistent reports of that nation’s use of malicious computer activities raise questions about whether China might seek intentionally to leverage these abilities to assert some level of control over the Internet, even for a brief period. Any attempt to do this would likely be counter to the interests of the United States and other countries. At the very least, these incidents demonstrate the inherent vulnerabilities in the Internet’s architecture that can affect all Internet users and beneficiaries at home and abroad.

Finally, the Chinese government in 2010 moved to place onerous restrictions on U.S. and other foreign firms that seek to conduct business in China. In one instance, new regulations may force companies to provide key information to Chinese authorities that can jeopardize the security of the firms’ products. In another case, proposed rules would create a dilemma for foreign firms by forcing them to choose either to compromise their products’ security and intellectual property or else lose access to large portions of the Chinese market.

Conclusions

- China’s government, the Chinese Communist Party, and Chinese individuals and organizations continue to hack into American computer systems and networks as well as those of foreign entities and governments. The methods used during these activities are generally more sophisticated than techniques used in previous exploitations. Those responsible for these acts increasingly leverage social networking tools as well as malicious software tied to the criminal underground.

- Recent high-profile, China-based computer exploitations continue to suggest some level of state support. Indicators include the massive scale of these exploitations and the extensive intelligence and reconnaissance components.
- In 2010, China's "Great Firewall" affected select U.S. Internet users, and a state-owned Chinese Internet Service Provider "hijacked," or inappropriately gained access to, select U.S. Internet traffic. Other nations were also affected in these incidents.
- Chinese authorities are tightening restrictions on foreign high-technology firms' ability to operate in China. Firms that fail to comply with the new regulations may be prohibited from doing business in Chinese markets. Firms that choose to comply may risk exposing their security measures or even their intellectual property to Chinese competitors.

RECOMMENDATIONS

China's Domestic Internet Censorship Activities

- The Commission recommends that Congress and the administration continue to raise censorship and Internet freedom as a priority in their exchanges with Chinese officials.
- The Commission recommends that Congress assess the effectiveness of U.S.-sponsored programs, such as those that promote international broadcasting and Internet censorship circumvention, intended to facilitate uncensored communication between Americans and people in China.
- The Commission recommends that Congress urge the administration to pursue in international fora better protections of information on the Internet in order to facilitate trade.

External Implications of China's Internet-Related Activities

- The Commission recommends that Congress request that the administration periodically issue a single report about the volume and seriousness of exploitations and attacks targeting the information systems of all federal agencies that handle sensitive information related to diplomatic, intelligence, military, and economic issues. To the extent feasible, these reports should indicate points of origin for this malicious activity and planned measures to mitigate and prevent future exploitations and attacks.
- The Commission recommends that Congress assess the effectiveness of existing mechanisms that enable the private sector to report confidentially instances of serious malicious activity targeting their information systems. Congress should also work with the administration to assess whether Department of Defense initiatives implemented in the past year to better secure their information systems might serve as a model for how to secure information systems at other large federal agencies. If so, Congress should ensure that similar initiatives are appropriately resourced.
- The Commission recommends that Congress urge the administration to help U.S. companies resist attempts by Chinese authorities to mandate or coerce foreign high-technology firms to reveal sensitive product information as a quid pro quo for market access in China.

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CHAPTER 6

INFORMATION CONTROLS

Introduction

During this year's reporting cycle, the Commission held a hearing that addressed Beijing's employment of various measures to control information. Over the past year, the Chinese government modified the legal and regulatory framework for state and trade secrets, clarifying some components but leaving others vague enough to employ arbitrarily and flexibly. Chinese authorities recently demonstrated a willingness to use these laws and regulations in ways that raise concern about foreign firms' opportunity to conduct business in China. In addition, Chinese companies' continued use of U.S. markets to raise capital poses questions about the adequacy of U.S. regulatory standards. This section aims to address these emerging trends and concludes with an analysis of the implications for the United States.

State and Trade Secrets

China's "state secrets" regime dates back to the early days of the People's Republic of China. This subsection provides background information on the numerous laws, regulations, and policies that comprise this legal regime and explains new developments in 2010. Most notably, this includes amendments (passed in April) to the State Secrets Law and new regulations (issued in March) regarding trade secrets.

State Secrets Law

China's State Secrets Law, which underpins many of the country's information controls, has had three phases: initial regulations first issued in 1951; a 1988 overhaul; and substantial amendments in 2010.

1951 Regulations

In 1951, Chinese authorities passed the *Regulations on the Preservation of State Secrets*, which governed all information related to enumerated subject areas such as national defense and foreign relations. The law, however, also included catch-all provisions intended to cover "all State affairs not yet decided upon" and "all other State affairs that must be kept secret." Mitchell A. Silk, partner and head of the U.S.-China Group at Allen & Overy LLP, testified to the Commission that in practice, these legal qualifiers created an environment where "whatever was a 'State secret' was a state secret, and whatever was not a 'State secret' was potentially a state secret."¹

1988 State Secrets Law

Within a decade of China's move toward opening and reform, the country's leadership recognized that greater accessibility of information would encourage higher rates of much-desired foreign investment, according to Mr. Silk.² To this end, the National People's Congress replaced the 1951 regulations with the *1988 Law of the People's Republic of China on Guarding State Secrets* (known colloquially as the "State Secrets Law"), which narrowed somewhat the categories of classified information. The law included other helpful developments, such as an explanation of classification levels and provisions for declassification. However, the law still contained ambiguous language and catch-all provisions, including restrictions on information related to "other matters that are classified as State secrets by the national State Secrets Bureau."*³

2010 Amendments

On April 29, 2010, China's National People's Congress revised the country's State Secrets Law. The changes, which took effect on October 1, 2010, included two notable developments. First, according to Mr. Silk, the amendments explicitly directed information technology firms to, among other things, "cooperate with public and national security authorities in the investigation of cases involving the disclosure of state secrets." He testified that "[t]his obligation extends to preventing the continued transmission of classified information." Network operators, furthermore, are charged with "providing details regarding the transmission of classified information to the authorities, with penalties imposed for any failure to comply."⁴ According to Mr. Silk, however, these new provisions may not in practice induce much of a change: Most network operators and service providers are wholly or partially state owned and thus already by existing measures compelled to cooperate with authorities in state secrets-related investigations.⁵

Second, the law restructures guidelines on how to label and handle state secrets, including regulations for the declassification of state secret information. Information may now be deemed "Ordinary Secret" and "Confidential Secret," which confer classified status for ten years and 20 years, respectively, by authorized departments of the central, provincial, and city governments. Information may be designated "Top Secret," apparently valid for a period of 30 years, only by authorized departments of the central and provincial governments.⁶ Author and columnist Gordon G. Chang testified to the Commission that Chinese authorities may not always observe these limits in practice, since:

Communist Party or government officials, to defend a prosecution for disclosure of a particular item of information, can always maintain they had previously extended the protection of that item before the general time limit had elapsed.⁷

*The national State Secrets Bureau, formally titled the National Administration for the Protection of State Secrets, is a State Council organ that takes "primary responsibility for the administration of the state secrets framework and the designation of state secrets . . . with the exception of the administration of military secrets." Human Rights in China, *State Secrets: China's Legal Labyrinth* (New York: 2007), p. 16.

Mr. Silk testified that “[t]he amendments do provide some welcome changes in classification ambiguities and treatment of classified information, but they fail to resolve significant lingering uncertainties.” Problematically, the law still includes language that “does not provide any further clarity as to what matters will be considered State secrets, nor does it narrow the broad range of information that could be covered by the State Secrets Law.” Mr. Silk concluded that “the law’s ambiguity will allow for flexible enforcement that could be guided by China’s prevailing political winds.”⁸ Mr. Chang raised the question of “whether the textual changes to the State Secrets Law have any significance.” He assessed that “[i]n a society where neither the Communist Party nor the government respects the rule of law, the fast—and definitive—answer is ‘no.’”⁹

Trade Secrets Provisions

On March 25, 2010, China’s State Assets Supervision and Administration Commission, the body in charge of all central government-owned state enterprises, issued the *Tentative Provisions for the Protection of Trade Secrets by Centrally-Governed Enterprises*. According to Mr. Silk’s testimony, these new regulations govern commercial secrets, which “may be considered a lesser version of State secrets, in that they concern the economic interests of [China] through its [state-owned enterprises].” The laws specifically address the 128 state-owned enterprises associated with the central government but will most likely inform the rules governing provincial- and other local government-owned firms across China.¹⁰

One analysis described the new provisions as “vague and extremely broad,” citing their expansive definition. They reportedly cover two types of information:

- *Operational information*, such as “strategic plans, management methods, business models, ownership restructuring and [initial public offerings], merger, acquisition, restructuring, property transaction, financial information, investment and financing decisions, manufacturing, purchasing and sales strategy, resource storage, customer information, and tender and bid”;¹¹ and
- *Technical information*, including “design, procedures, product formula, processing technology, manufacture method and know-how, etc.”¹²

Other Relevant Regulations

Other laws and regulations continue to apply to China’s state secrets regime. Four in particular bear mentioning.*

Criminal Law

Various amendments to China’s Criminal Law further stipulate specific sanctions for violations of state secrets.¹³ For example, article 111 penalizes “whoever steals, spies into, or unlawfully supplies state secrets or intelligence to an organ, organization, or individual

*A more complete account of relevant articles and their associated penalties is included in the written testimony of Mitchell A. Silk, available at www.USCC.gov.

outside the territory of China.”¹⁴ Article 282 punishes anyone who “unlawfully holds the documents, material, or other objects classified as ‘strictly confidential’ or ‘confidential’ State secrets and refuses to explain their sources and purposes.”¹⁵

State Security Law

Similarly, two portions of China’s State Security Law, Article 4 and Article 20, contribute to China’s state secrets regime. Article 4 provides the basis for prosecuting those accused of endangering state security, including by “stealing, gathering, procuring, or illegally providing State secrets.” Article 20 holds that “no organization may illegally hold any documents, information or other materials classified as State secrets.”*¹⁶

1996 Interim Provisions on the Prohibition of Commercial Bribery

These provisions, which draw from China’s Criminal Law and the Anti-Unfair Competition Law, add another dimension to China’s state secrets laws. Specifically, the provisions apply to state secrets enforcement actions related to economic issues and penalize any improper benefits gained through improper means.¹⁷

1990 Measures for Implementing the Law on the Protection of State Secrets

This regulation provides for what one report summarized as “retroactive classification of information not already enumerated or classified as a state secret.”¹⁸

Information on U.S.-listed Chinese Firms

Chinese companies increasingly seek to raise capital in U.S. markets. A Chinese firm listed on an American exchange for the first time in October 1992;† today, NASDAQ and the New York Stock Exchange combined list 88 Chinese companies.‡ The Securities and Exchange Commission, the U.S.’s primary enforcement agency, maintains an Office of International Corporate Finance charged with protecting U.S. investors by evaluating the completeness and accuracy of materials from Chinese and other foreign firms.§ That office’s chief, Paul Dudek, testified to the Commission that his staff

*Some evidence suggests that Chinese authorities have recently enforced these laws with more vigor and with a broad interpretation. For example, Rebecca MacKinnon testified to the Commission that “in 2008 arrests and indictments on charges of ‘endangering state security’—the most common charge used in cases of political, religious, or ethnic dissent—more than doubled for the second time in three years.” See U.S.-China Economic and Security Review Commission, *Hearing on China’s Information Control Practices and the Implications for the United States*, written testimony of Rebecca MacKinnon, June 30, 2010.

†The firm in question was China Brilliance Automotive, a minivan manufacturer. It listed on the New York Stock Exchange. See Peter M. Friedman, “Risky Business: Can Faulty Country Risk Factors in the Prospectuses of U.S.- Listed Chinese Companies Raise Violations of Securities Law?” *Columbia Journal of Transnational Law* (2005–2006): 245.

‡A list of these companies can be found on the Bank of New York Mellon Depository Receipts Directory at http://www.adrbnymellon.com/dr_directory.jsp. Users must select “China” from the “Country” list and the desired exchange(s) from the “DR Exchange” list. Figures cited above are accurate as of October 8, 2010.

§The office is part of the Division of Corporate Finance, which “has primary responsibility for overseeing disclosures by issuers of securities.” See U.S.-China Economic and Security Review Commission, *Hearing on China’s Information Control Practices and the Implications for the United States*, written testimony of Paul Dudek, June 30, 2010. Mr. Dudek testified in a personal capacity.

must review “annual and other periodic reports” for approximately 950 foreign firms, including:

*about a dozen large companies incorporated in China and several dozen smaller companies that are incorporated in a foreign country outside of China (typically the Cayman Islands) that conduct substantially all of their business operations in China. Some of these companies disclose substantial ownership by the Chinese government.*¹⁹

Disclosure laws and norms are intended to ensure the smooth operation of U.S. capital markets and serve as the Securities and Exchange Commission’s most potent tool to determine the accuracy and completeness of information provided by companies listed on U.S. exchanges. The United States requires companies to disclose material information including assets, liabilities, operations, and executives to provide necessary transparency for U.S. markets.* These disclosure requirements ensure that potential investors can make informed decisions about whether to purchase a given security. According to testimony to the Commission by Peter M. Friedman, a New York-based lawyer, the Securities and Exchange Commission requires disclosure for numerous categories of risk, including “the lack of business history, adverse business experience, competitive factors, and certain types of transactions with insiders.” These disclosures are intended, he said, to clarify the “most significant factors that make the offering speculative or risky.”²⁰

“Country risk” is one such category that has particular relevance for Chinese companies, given that nation’s political and economic features. Mr. Dudek testified that, in addition to risks that may affect all foreign firms, such as changes in currency valuation:

*companies from China typically address other factors as well, such as risks associated with state ownership, the increased role of the Chinese government in the Chinese economy, Chinese regulations restricting foreign ownership of a Chinese company in certain industries, and the less developed state of legal principles and the civil law structure governing business in China.*²¹

Given the implications of these risks, and the seriousness of numerous others that affect the business environment in China, questions remain about the adequacy of Chinese corporate disclosures. To this end, five trends in particular merit consideration: (1) the Chinese Communist Party’s role in business; (2) other forms of state intervention in firms and markets; (3) the lack of legal recourse in cases of impropriety; (4) related-party transactions at large, state-owned enterprises; and (5) the opacity of firms’ ownership structures. These factors apply to China’s state-owned enterprises and, in some cases, private firms, as both now routinely seek U.S. capital from investors. Each factor is discussed below.

*The Securities Act of 1933 holds that “material” information is that for which “there is a substantial likelihood that a reasonable investor would attach importance in determining whether to purchase the security registered.” Subsequent case law has further clarified the standard. See U.S.-China Economic and Security Review Commission, *Hearing on China’s Information Control Practices and the Implications for the United States*, written testimony of Peter M. Friedman, June 30, 2010.

Chinese Communist Party Involvement

The Chinese Communist Party maintains a robust role in Chinese business. This involvement is multidimensional, but firm control exercised over state-owned enterprise officials' promotions and transfers remains one of the central considerations from the standpoint of business autonomy. Dr. James V. Feinerman, professor at Georgetown Law School, testified that:

one remaining feature of the central planning system, a politically controlled personnel system, still governs government entities at all levels, including [state-owned enterprises]. China's central government and Communist Party committees have the ultimate authority over the selection, appointment, and dismissal of top managers of almost all large, strategic [state-owned enterprises] under the administration of the State Asset Supervision and Administration Commission. Managers rotate through a revolving door between enterprise and government posting as they move up the political ranks, in parallel with their rise within the Communist Party.²²

This practice appears to be institutionalized.²³ Tellingly, these frequent personnel shuffles can include transfers to and from government entities or between competitive state-owned enterprises. Dr. Feinerman cited the banking sector as one example, where “the top officials at China’s financial sector regulatory agencies, the central bank, and the major state-owned banks are senior Chinese Communist Party members, whose appointments are often dictated by political considerations.”²⁴ Moreover, he said, there is “virtually no disclosure of Communist Party involvement in the appointment process for managers, directors, and officers of [Chinese] enterprises, nor are the parallel positions of directors, officers, and managers within the Communist Party described in their biographies.”²⁵

Asked whether the Securities and Exchange Commission should require disclosure about the involvement of the Chinese Communist Party in the operations of a U.S.-listed Chinese firm, Mr. Dudek testified to the Commission that “that is something that I think should be explored. . . . [I]t clearly goes to not only the sort of business and experience with the company, but also the important relationships outside the company [that] should be disclosed as well.” He noted that such a disclosure might not be appropriate in every case. Mr. Dudek further testified that the Chinese Communist Party is “not just another political party,” but acknowledged that the Securities and Exchange Commission staff has never requested clarification about a U.S.-listed Chinese state-owned enterprise’s disclosure on Communist Party involvement in a listed entity.²⁶ Mr. Dudek further stated that the Securities and Exchange Commission disclosure review processes are organized by industry and do not necessarily include staff with country-specific expertise.²⁷

Other State Intervention in Firms and Markets

Chinese officials view large, state-owned enterprises as “quasi-governmental agencies” as opposed to “independent, profit-making commercial entities,” according to Dr. Jing Leng, assistant professor of law at the University of Hong Kong.²⁸ China’s state-owned enterprises, therefore, are subject to government directives regarding basic operations. The government can induce a state-owned enterprise to purchase materials or services from other state firms, regardless of price, quality, or availability. State-owned banks can be forced to issue questionable loans to serve domestic policy interests.

China’s leadership has sometimes combined personnel shifts with broad market interventions severe enough to functionally rearrange an entire sector. Perhaps the most illustrative example of this practice came with a recent overhaul of China’s telecommunications industry, undertaken to strengthen and streamline the field. After years of frequent adjustments, Chinese authorities merged six state-owned enterprises into three companies: China Mobile, China Telecom, and China Unicom. The head officials at these firms, Wang Jianzhou, Wang Xiaochu, and Chang Xiaobing, respectively, each have experience as a high-ranking executive at one of his competition’s firms.²⁹ Richard McGregor described this series of moves as:

*the equivalent of the [chief executive officer] of AT&T being moved without notice to head its domestic U.S. competitor, Verizon, with the Verizon chief being appointed to run Sprint, at a time when all three companies were locked in a bruising battle on pricing and industry standards.*³⁰

Lack of Legal Recourse

Legal action against a U.S.-listed Chinese firm could be difficult or impossible to enforce. According to Dr. Feinerman, “Chinese courts are not subject to any treaty or convention obligating them to recognize judgments by courts in the [United States].”³¹ The case of now-defunct First Natural, a mainland China-based, Hong Kong-listed seafood company, illustrates the difficulty in legally engaging entities in mainland China, even for regulators in Hong Kong. As of June 2008, First Natural had almost \$270 million in net assets, according to the *South China Morning Post*. But by January 2009, Hong Kong’s High Court declared the firm insolvent, and subsequent reports noted improper bookkeeping practices. The firm’s Hong Kong investors, however, had no mechanisms by which to pursue legal action, given the absence of a joint rendition treaty between Hong Kong and the mainland.³²

In the event of a similar scenario in the United States, any enforcement actions against a Chinese firm would require “extensive assistance” from a regulator within China because, according to Mr. Dudek, “the Securities and Exchange Commission’s compulsory processes are not effective in foreign countries.”³³ He went on to testify that the Securities and Exchange Commission has “very good relations . . . from an enforcement point of view with the [China Securities Regulatory Commission],”³⁴ China’s main securities enforcement agency. Problematically, however, aside from its

role as a “disclosure watchdog,” the China Securities Regulatory Commission is also charged with the sometimes conflicting role of promoting investment in the Chinese stock market.³⁵ This could conceivably limit cooperation in some contexts.

Related-party Transactions at Large, State-owned Enterprises

Financial obligations and relationships between large, state-owned enterprises and their associated “spin-off” firms can be exceedingly difficult to understand. Dr. Feinerman testified to the Commission that “the extent of related-party transactions as well as their full disclosure may prove problematic; in [China], such transactions are often numerous, complex, and inadequately disclosed.”³⁶ According to Dr. Leng, state-owned enterprises sometimes “hive off the best businesses of an inefficient state giant and then repackage them into a new [subsidiary] company with stronger management to set up a listing entity, and finally sell shares of the new firm to the public.” The new subsidiary may then engage in “unsecured business dealings” with the parent company (i.e., the unprofitable remains of the state-owned enterprise) in which the new entity is required to lend financial support to the parent firm.³⁷ For example, in 2004, purchasers of China Life’s initial public offering filed a class action lawsuit against the company, claiming it failed to disclose a \$652 million financial fraud perpetrated by its parent company.³⁸

Asked about the Securities and Exchange Commission’s view of such related-party transactions, Mr. Dudek testified that “[w]e don’t make any judgments. We make sure that [transactions] are disclosed.”³⁹ The voluntary nature of U.S. disclosure requirements further complicates matters, as the Securities and Exchange Commission does not have full access to company records.

Opacity of Ownership Structures

Exact information about the ownership of U.S.-listed Chinese firms remains difficult to discern. According to the testimony of Mr. Friedman:

*[A]n analysis of the ownership structures of [certain U.S.-listed Chinese] companies raises some issues. The entities listed in the U.S. are usually offshore holding companies incorporated in the U.S. Cayman Islands or other domiciles outside of China, and the operating entities and assets are located in China. There is no easily searchable database or other resource to verify the onshore ownership structure of these companies. Nothing is usually disclosed in the prospectuses to indicate any government involvement, but it is difficult to know whether local or provincial governments play a role in the operation of these companies and the extent of that role.*⁴⁰

Potential investors must have a complete understanding of a listed firm’s ownership in order to assess whether major stakeholders in the company would necessarily act in the investor’s best interests. Foreign government entities in particular may not always be willing or able to do so. In characterizing the risk posed by this

issue, Mr. Friedman testified that “[i]t is not necessarily a problem that local and provincial governments may be involved with these companies in some capacity, but such disclosure is lacking.”⁴¹ The key issue is transparency.

The five issues outlined above represent risks to U.S. investors. Some are unique to China. Despite these problems, country risk disclosures in the official filings of U.S.-listed Chinese companies are composed of “relatively formulaic statements” that have not materially changed in “content and language” since the first Chinese company listed on a U.S. exchange in 1992, according to Dr. Feinerman. He described these minimal changes, combined with an overall reduction of content in prospectuses, as “worrisome from [the] standpoint of disclosure of material information.”⁴² Dr. Feinerman concluded that:

*there is a decided trend away from more disclosure about Chinese country risk. The language has changed very little over the past decade, while [China] has changed greatly. The boilerplate language found in the country risk section raises the question of whether Chinese enterprises disclose enough information to avoid potential liability under federal securities laws for material omissions or misrepresentations in that section.*⁴³

This boilerplate language filed by Chinese companies appears to stem from the precedent-based nature of the Securities and Exchange Commission’s disclosure requirements. Both Dr. Feinerman and Mr. Friedman testified to the Commission that companies preparing disclosure documents refer back to, and largely reproduce, previous disclosures made by listed firms in the same industry.⁴⁴

Implications for the United States

China’s handling and control of information present serious implications for the United States. First, China’s state secrets laws are vague and designed to permit arbitrary enforcement, which could be used to forward political objectives. Mr. Chang testified that China’s new State Secrets Law “directly affects every American business operating in China,” given the possibility for unpredictable legal charges.⁴⁵ This observation appears to be borne out in the case of Xue Feng, an American geologist sentenced in July to eight years in prison in China for purchasing publicly available geological reports that Chinese authorities retroactively deemed to be state secrets.⁴⁶ Citing such enforcement actions, Mr. Chang noted that, in order to “obtain an advantage in commercial transactions . . . Beijing’s weapon of choice, it now appears, is the State Secrets Law.” Similarly, in the case of American automotive engineer Hu Zhicheng arrested in late 2008, Chinese authorities demonstrated the willingness to enforce trade secrets provisions for what Mr. Hu’s wife called “punishment over a business dispute.”⁴⁷

Second, Chinese firms’ recent disclosure practices in the United States indicate a lack of transparency about key issues. This manifests in several areas, including the use of boilerplate language throughout official company filings and a general reduction in coverage about specific Chinese “country risks.” The Securities and

Exchange Commission reviews and clears the filings submitted by all firms before the documents can be reviewed by the public. However, questions remain about whether the U.S. enforcement regime is configured in such a way that would ensure sensitivity to unique country risks. Specifically, the Securities and Exchange Commission's Office of International Corporate Finance, according to testimony by Mr. Dudek, is arranged by industry sector. This means that experts charged with reviewing corporate information related to, for example, telecommunications companies, might examine documents for such companies from any country in the world that sought to list on a U.S. exchange. The absence of country expertise increases the risks that Chinese firms could, for example, submit prospectuses that do not fully disclose the role of the Chinese Communist Party in all aspects of personnel decisions at state-owned enterprises.

Finally, there is a potentially troubling nexus between China's state secrets regime and disclosures by U.S.-listed Chinese companies to U.S. regulatory bodies. According to Mr. Chang, China's "State Secrets Law can undermine American securities laws." A U.S.-listed Chinese firm could, for example, withhold information that should be disclosed to U.S. regulators for fear of resulting legal reprisals in China. Mr. Chang testified that companies bound by two conflicting sets of law, one foreign and one domestic, generally "comply with the law of their home jurisdiction and . . . violate the laws of others."⁴⁸ Finally, he noted that executives at:

*larger state enterprises, the ones that actually list on American markets, . . . are appointed by the Communist Party. So it's very unlikely that they are going to anger their superiors at home by disclosing what they must under U.S. securities law and thereby . . . violate their own State Secrets Law.*⁴⁹

Conclusions

- The Chinese government refined its state and trade secrets regime in 2010. This effort yielded some clarifications, but several laws and regulations still contain broad language that allows for ambiguous interpretation and arbitrary enforcement. In recent years, Chinese authorities have enforced these provisions on U.S. citizens doing business in China.
- For U.S.-listed Chinese firms, China's state secrets laws could conceivably conflict with U.S. disclosure requirements. If the firms defer to the Chinese laws, U.S. investments could be at increased risk.
- Official filings from U.S.-listed Chinese companies may not adequately disclose material information that relates specifically to China, such as the pervasiveness of Chinese Communist Party influence in the day-to-day operations of state-owned enterprises and their subsidiaries.

RECOMMENDATIONS

- The Commission recommends that Congress direct the Securities and Exchange Commission to require that disclosure documents filed by companies seeking to list on the U.S. exchanges identify the Chinese Communist Party affiliation of board members and senior corporate officials.
- The Commission recommends that Congress adopt legislation mandating that the Securities and Exchange Commission retain analysts with country-specific expertise to review filings from foreign companies, particularly Chinese companies.

ENDNOTES FOR CHAPTER 6

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COMPREHENSIVE LIST OF THE COMMISSION'S RECOMMENDATIONS

Chapter 1: The U.S.-China Trade and Economic Relationship

Section 1: The U.S.-China Trade and Economic Relationship's Current Status and Significant Changes During 2010

1. The Commission recommends that Congress urge the administration to respond to China's currency undervaluation by
 - a. working with U.S. trading partners to bring to bear on China the enforcement provisions of all relevant international institutions; and
 - b. using the unilateral tools available to the U.S. government to encourage China to help correct global imbalances and to shift its economy to more consumption-driven growth.
2. The Commission recommends that Congress examine the efficacy of the tools available to the U.S. government to address market access-limiting practices by China not covered by its WTO obligations, and, as necessary, develop new tools.
3. The Commission recommends that Congress direct the U.S. Department of the Treasury to monitor steps taken by China to promote the international use of the RMB, with a focus on the implications of such steps for the position of the U.S. dollar as the world's reserve currency.

Section 2: The Implications and Repercussions of China's Holding U.S. Debt

4. The Commission recommends that Congress evaluate steps that might be necessary to ensure that China's currency manipulation, undervaluation, or misalignment does not adversely affect the competitiveness of U.S. producers, including whether it should initiate action under Section 301 of the Trade Act of 1974.
5. The Commission recommends that Congress urge the Department of the Treasury to designate China as a currency manipulator in its semiannual report.
6. The Commission recommends that Congress direct the Department of the Treasury to fully account for all sales of U.S. government debt to foreign governments and holdings of U.S. government debt by foreign governments.

Section 3: Evaluating China's Past and Future Role in the World Trade Organization

7. The Commission recommends that Congress urge the administration to encourage China to develop a national, provincial, and local procurement regime based on performance and value rather than on local content and the origin of intellectual property.
8. The Commission recommends that Congress encourage USTR to step up enforcement of WTO rules and U.S. laws by requesting consultations at the WTO on China's noncompliance with its obligations under WTO articles of accession, including denial of national treatment, export restrictions, and illegal subsidies. If China's noncompliance is not adequately resolved through such consultations, Congress should encourage USTR to file a formal WTO complaint.

Chapter 2: China's Activities Directly Affecting U.S. Security Interests

Section 1: China's Growing Air and Conventional Missile Capabilities

9. The Commission recommends that Congress require the Department of Defense, as part of the appropriate Combatant Commander's annual posture statement to Congress, to report on the adequacy of the U.S. military's capacity to withstand a Chinese air and missile assault on regional bases, as well as a list of concrete steps required to further strengthen their bases' capacity to survive such an assault and continue or resume operation.
10. The Commission recommends that Congress assess the adequacy of resources available to Department of Defense's programs that seek to defend U.S. forward-deployed bases. Key programs include theater missile defense and early warning systems, hardened structures and hangars, air defense systems, and runway repair kits.
11. The Commission recommends that Congress assess the adequacy of resources available to Department of Defense programs that seek to counter China's antiaccess capabilities. Key programs include long-range strike platforms, electronic warfare systems, and advanced air-to-air platforms and weapons, such as fifth generation fighters and air-to-air missiles.
12. The Commission recommends that Congress urge the Department of Defense to continue to strengthen its interaction with allies in the Western Pacific. In addition, the Department should expand its outreach to other nations in Asia in order to demonstrate the U.S.'s continued commitment to the region.
13. The Commission recommends that Congress urge the administration to work with allies in the region to strengthen their air and missile defense capabilities.

Section 2: Developments in China's Commercial and Military Aviation Industry

14. The Commission recommends that Congress urge the administration to investigate whether Beijing's policies for developing its aviation industry conflict with China's World Trade Organization commitments. Specifically, the administration should look into China's requirement for offsets in exchange for market access and government policies that favor domestic aviation manufacturing firms over foreign ones.
15. The Commission recommends that Congress should review with the Department of Justice whether or not any U.S. anti-trust laws, rules, and regulations impede cooperation within the aircraft manufacturing industry to resist Chinese offset demands, and should legally authorize such cooperation, if necessary.
16. The Commission recommends that Congress encourage the administration to closely monitor the transfer of technology and know-how from China's commercial aviation sector to its military aviation sector. Such monitoring should examine what impact new cooperative production, technology-sharing or other arrangements by U.S. or foreign firms might have in promoting the development of China's indigenous civilian and/or military aviation production capabilities.
17. The Commission recommends that Congress hold hearings to assess administration efforts to accelerate the certification by the Federal Aviation Administration of Chinese indigenously produced aircraft and what impact that may have on the sale of U.S. aircraft.

Chapter 3: China in Asia

Section 1: China in Southeast Asia

18. The Commission recommends that Congress urge the administration to continue to increase its engagement with Southeast Asia diplomatically, economically, and militarily. Congress should also press the administration to commit to annual U.S.-ASEAN summits and, when possible, commit the President of the United States to travel to Southeast Asia to attend the meetings.
19. The Commission recommends that Congress urge the administration to move quickly in appointing a new U.S. ambassador to ASEAN.
20. The Commission recommends that Congress urge the administration to press Beijing to make more transparent its planned construction of hydropower dams along the Mekong River.
21. The Commission recommends that Congress require the U.S. Department of Agriculture and other relevant government agencies to submit a report detailing the impact that Chinese hydroelectric dams along the Mekong River could potentially have on the global food supply.

Section 2: Taiwan

22. The Commission recommends that Congress direct the Department of Defense to address the issue of Taiwan's air defense capabilities, to include a more detailed net assessment of Taiwan's needs vis-à-vis China's growing military air and missile capabilities and an assessment of the impact that further deterioration in Taiwan's air defense capabilities could have on U.S. forces in the event of U.S. involvement in a cross-Strait scenario.
23. The Commission recommends that Congress encourage the administration to continue to support the improving relationship between Taiwan and China.
24. The Commission recommends that Congress encourage the administration to identify ways to strengthen economic relations between the United States and Taiwan in order to improve Taiwan's position in further economic negotiations with the mainland.
25. The Commission recommends that Congress pass a joint resolution reaffirming the importance of, and continued U.S. commitment to, the Taiwan Relations Act of 1979.
26. The Commission recommends that Congress urge the administration to encourage the People's Republic of China to build up the improved cross-Strait relationship by renouncing the use of force in regard to resolving its dispute with Taiwan. Beijing should also be encouraged to demonstrate its good intentions by drawing down the number of short-range ballistic missile forces deployed against Taiwan.
27. The Commission recommends that Congress encourage the administration to continue to work with Taiwan to modernize its armed forces, with particular emphasis on its air defense needs.

Section 3: Hong Kong

28. The Commission recommends that Congress reauthorize the U.S.-Hong Kong Policy Act of 1992, which expired in 2007.
29. The Commission recommends that Members of Congress, when visiting mainland China, also visit Hong Kong and that Congress encourage senior administration officials, including the secretary of State, to make visits to Hong Kong part of their travel.
30. The Commission recommends that Congress encourage its Members to raise the issue of preserving Hong Kong's special status when meeting with members of China's National People's Congress.

Chapter 4: China's Green Energy Policies and Efforts to Promote the Alternative Energy Sector

Section 1: China's Environmental and Green Energy Policies

31. The Commission recommends that Congress urge the administration to seek from China more accurate reporting of its energy use and the resulting environmental effects, including its carbon dioxide emissions. The Commission further recommends that Congress encourage the administration to enhance cooperation with China to more effectively collect this information.
32. The Commission recommends that Congress identify and assess the benefits and disadvantages of bilateral and multilateral cooperation between the United States and China on green energy and the environment. In its assessment, Congress should examine whether the intellectual property rights of U.S. companies are being protected.
33. The Commission recommends that Congress urge the administration to work with the United Nations to revise its classification of China as a developing country.
34. The Commission recommends that Congress encourage the administration to include U.S. friends and allies in the developing world in its discussions with China on its clean energy and climate change policies.

Section 2: U.S. and Chinese Efforts to Promote Alternative Energy Manufacturing

35. The Commission recommends that if the United States is to compete successfully in green technology manufacturing, Congress should examine domestic programs available to U.S. producers to ensure that these policies are an adequate response to China's strategic promotion of the green technology sector.
36. The Commission recommends that Congress urge the administration to continue to press China to ensure that China's market is open to imported green technology products, including solar, wind, and battery products.
37. The Commission recommends that Congress assess differing policies in the United States and China on trade and tariffs in the green technology sector with an aim to maximize U.S. competitiveness.

Chapter 5: China and the Internet

Section 1: China's Domestic Internet Censorship Activities

38. The Commission recommends that Congress and the administration continue to raise censorship and Internet freedom as a priority in their exchanges with Chinese officials.
39. The Commission recommends that Congress assess the effectiveness of U.S.-sponsored programs, such as those that promote international broadcasting and Internet censorship circumvention, intended to facilitate uncensored communication between Americans and people in China.

40. The Commission recommends that Congress urge the administration to pursue in international fora better protections of information on the Internet in order to facilitate trade.

Section 2: External Implications of China's Internet-Related Activities

41. The Commission recommends that Congress request that the administration periodically issue a single report about the volume and seriousness of exploitations and attacks targeting the information systems of all federal agencies that handle sensitive information related to diplomatic, intelligence, military, and economic issues. To the extent feasible, these reports should indicate points of origin for this malicious activity and planned measures to mitigate and prevent future exploitations and attacks.
42. The Commission recommends that Congress assess the effectiveness of existing mechanisms that enable the private sector to report confidentially instances of serious malicious activity targeting their information systems. Congress should also work with the administration to assess whether Department of Defense initiatives implemented in the past year to better secure their information systems might serve as a model for how to secure information systems at other large federal agencies. If so, Congress should ensure that similar initiatives are appropriately resourced.
43. The Commission recommends that Congress urge the administration to help U.S. companies resist attempts by Chinese authorities to mandate or coerce foreign high-technology firms to reveal sensitive product information as a quid pro quo for market access in China.

Chapter 6: Information Controls

44. The Commission recommends that Congress direct the Securities and Exchange Commission to require that disclosure documents filed by companies seeking to list on the U.S. exchanges identify the Chinese Communist Party affiliation of board members and senior corporate officials.
45. The Commission recommends that Congress adopt legislation mandating that the Securities and Exchange Commission retain analysts with country-specific expertise to review filings from foreign companies, particularly Chinese companies.

ADDITIONAL VIEWS OF COMMISSIONERS ROBIN CLEVELAND AND WILLIAM A. REINSCH

We support this year's Report, although, as we note below, in failing to fully reflect the balance the bilateral relationship deserves, it does a disservice to the Congress, which is entitled to hear not simply what it wants but rather serious conclusions supported by thorough research and investigation.

Last year our remarks noted that the current government has halted and in some areas reversed the uneven but consistent march in the direction of a market economy of its predecessors. Instead of concentrating on meeting its WTO obligations, welcoming foreign investment and encouraging private sector activity, the government has turned to selecting national champions, increasing subsidies and selective tax benefits, creating new standards barriers and discouraging joint ventures. We share the Commission's concerns that these actions will make China's economic relations with the rest of the world more acrimonious.

Notwithstanding these developments, China continues to be the destination of choice for American companies interested in global expansion. Moreover, while the Commission reports extensively on China's failures with regard to its WTO obligations and is critical of the substantial cumulative trade deficits, balance is missing in this account. For example, the U.S.-China Business Council reports that export trade in goods has jumped 330 percent since WTO accession, with American companies experiencing better profit margins and real growth in their China market during 2009 when sales and opportunities elsewhere in the world were shrinking.

The United States has taken on the unenviable task of trying to persuade China to change policies that appear to be quite successful for them in the short run. Much of that debate revolves around the RMB exchange rate, which has become a proxy for the entire relationship. There is no question the RMB is undervalued, and it is in China's interest, as well as everyone else's, to rectify that. Its continued refusal to do so despite growing international pressure is a reflection of how difficult it is to move China away from a policy of self-aggrandizement and bring it into the community of nations working together to solve global problems. This will become even more important as more and more problems become global. The exchange rate, however, is a problem that neither the Congress nor the United States acting alone can resolve. As reflected in testimony before the Commission, the administration must collaborate closely with members of the G-20 to advance this matter to a satisfactory conclusion. Only by developing and asserting a coherent, collective position are we likely to secure Chinese cooperation. By endorsing legislation that will not—and cannot—solve the exchange rate problem, the Commission has also missed an opportunity to focus more clearly on the other issues in our economic relationship that could benefit both U.S. trade and interests.

The danger right now is that by responding to domestic political imperatives, both sides might fundamentally misjudge the other and not only miss an opportunity to build a more positive relationship but actually drive us apart. The United States, recovering too slowly from the worst recession in 80 years, seems tempted to act

out of fear, blaming China for our economic problems, just as 20 years ago we blamed the Japanese. While blame is tempting—and often well placed—it is *our* destiny we control, not theirs. Faulting them for doing things in their own interest is emotionally satisfying but ultimately an empty gesture. Our politicians serve our people best when they act in our interests and when they persuade the Chinese to work with us in pursuit of common interests.

Conversely, there is growing evidence on the political front to suggest China is acting out of misplaced confidence, bullying its neighbors and resisting efforts to reach international agreement on a range of issues. Most notable among the latter has been climate change where, despite pursuing domestic “green” policies that are more far-reaching than our own, China has steadfastly resisted an international agreement that would probably require them to do little more than they are already doing on their own. Further, we share our colleagues’ concerns about the government’s oppressive use of censorship and restrictions on internal political discourse, especially the recent response to the Nobel Committee’s decision to award Liu Xiaobo the 2010 Peace Prize, but more balance in coverage of political developments would have improved the Commission’s report. In recent days, senior party officials have commented that there is a need for political openness to accompany the economic reforms the government has implemented. It is too early to determine whether these voices for political reform will make a difference; however, it is our view that the Commission’s criticism of Chinese political repression should be matched by a more thorough account of these internal voices struggling to gain traction. Calling attention only to the patterns of oppression is a disservice to the very people most likely to secure meaningful change.

As noted by the United Nations Development Fund, the last two decades of rapid economic development have “generated the most rapid decline in absolute poverty ever witnessed.” China is one of very few nations that have already achieved the Millennium Development goal to halve the number of people living in extreme poverty by 2015. These are impressive achievements and speak to both the capacity and impact China’s leaders have had in guiding national economic progress. However, if China wishes to assume a global role commensurate with its size, potential, and aspirations, it must understand and be prepared to assume the obligations of leadership, which require a degree of self-abnegation. China’s leaders have demonstrated that they have a clear understanding of what is in their immediate interest. Their challenge will be to demonstrate they also understand what is in the larger interest of the global system of which they are a part, that the health of that system is inextricably tied with their own, and that they are prepared to act on that understanding.

ADDITIONAL VIEWS OF COMMISSIONER DENNIS C. SHEA

One could read this Report and reasonably come away with the impression that China is the primary culprit for the economic problems we are experiencing in the United States. So let's be clear: The economic mess in which America finds itself today is largely of our own making.

Comprehensively detailing the sources of our economic troubles and describing the steps needed to restore America's economy and international competitiveness are subjects that fall outside the mandate and competence of this Commission. Other organizations and government-sponsored groups have examined these important topics and will continue to do so. In my view, restraining excessive government spending, adopting tax policies that encourage investment and savings, and supporting the entrepreneurs and risk-takers in our country are just some of the actions we need to take. Admittedly, achieving even these goals will require a level of political discipline in Washington that we have not seen for many years. But, in the end, we are masters of our own fate.

To say that the United States is primarily responsible for its own economic problems, however, does not mean that China is a blameless party. China continues to undervalue its own currency to the detriment of U.S. exporters and our manufacturing sector. The purpose of this policy is pure self-interest: to support a level of employment in China considered necessary for social stability and the maintenance of political control by the Chinese Communist Party. Chinese Prime Minister Wen Jiabao perhaps spoke more candidly than he intended when he warned that any significant appreciation in the RMB might lead to "social and economic turbulence" as Chinese exporting companies closed their gates and migrant workers were forced to return to their villages.

Similarly, the year 2010 marked a shift in Chinese policy toward a more robust state-directed capitalism and saw the erection of a number of trade-distorting barriers around Chinese domestic markets considered of strategic importance. The implementation of an "indigenous innovation" policy, the imposition of export restraints on critical rare earth metals, and the apparent lack of access by some western companies to the Chinese "green technology" market are a few examples of these disturbing trends.

To insist that China reverse these protectionist policies, abide by its international commitments, and play a constructive role on the global stage cannot fairly be characterized as "China-bashing," a term too often used to denigrate those with legitimate concerns about Chinese government actions.

This Report also documents China's growing air and conventional missile capabilities while also highlighting the deteriorating quality of Taiwan's air force. While the Report recommends that Congress encourage the administration to continue to work with Taiwan to modernize its armed forces and particularly its air force, I would have preferred a more specific recommendation: Consistent with the obligations of the United States under the Taiwan Relations

Act of 1979, Congress should urge the administration to sell Taiwan the F-16s it has requested. Strengthening Taiwan's air defense capabilities in this way will send an important signal about America's commitment to regional security in East Asia and will help instill Taiwan with greater confidence as it continues down the welcome path of enhancing its economic, diplomatic, and cultural ties with its more powerful neighbor.

APPENDIX I

UNITED STATES-CHINA ECONOMIC AND SECURITY REVIEW COMMISSION CHARTER

22 U.S.C. 7002 (2001)

The Commission was created on October 30, 2000, by the Floyd D. Spence National Defense Authorization Act for 2001 § 1238, Pub. L. No. 106-398, 114 STAT. 1654A-334 (2000) (codified at 22 U.S.C. § 7002 (2001), as amended by the Treasury and General Government Appropriations Act for 2002 § 645 (regarding employment status of staff) & § 648 (regarding changing annual report due date from March to June), Pub. L. No. 107-67, 115 STAT. 514 (November 12, 2001); as amended by Division P of the “Consolidated Appropriations Resolution, 2003,” Pub. L. No. 108-7 (February 20, 2003) (regarding Commission name change, terms of Commissioners, and responsibilities of Commission); as amended by Pub. L. No. 109-108 (enacted November 22, 2005) (regarding responsibilities of Commission and applicability of FACA); as amended by Pub. L. No. 110-161 (enacted December 26, 2007) (regarding changing annual report due date from June to December; reporting unobligated balances and submission of quarterly financial reports; deemed Commission a committee of Congress for printing and binding costs; amended employee compensation levels, and performance-based reviews and awards subject to Title 5 USC; and directed that travel by members of the Commission and its staff shall be arranged and conducted under the rules and procedures applying to travel by members of the House of Representatives and its staff).

§ 7002. United States-China Economic and Security Review Commission

(a) Purposes. The purposes of this section are as follows:

(1) To establish the United States-China Economic and Security Review Commission to review the national security implications of trade and economic ties between the United States and the People’s Republic of China.

(2) To facilitate the assumption by the United States-China Economic and Security Review Commission of its duties regarding the review referred to in paragraph (1) by providing for the transfer to that Commission of staff, materials, and infrastructure (including leased premises) of the Trade Deficit Review Commission that are appropriate for the review upon the submittal of the final report of the Trade Deficit Review Commission.

(b) Establishment of United States-China Economic and Security Review Commission.

(1) In general. There is hereby established a commission to be known as the United States-China Economic and Security Review Commission (in this section referred to as the “Commission”).

(2) Purpose. The purpose of the Commission is to monitor, investigate, and report to Congress on the national security implications of the bilateral trade and economic relationship between the United States and the People’s Republic of China.

(3) Membership. The United States-China Economic and Security Review Commission shall be composed of 12 members, who shall be appointed in the same manner provided for the appointment of members of the Trade Deficit Review Commission under section 127(c)(3) of the Trade Deficit Review Commission Act (19 U.S.C. 2213 note), except that—

(A) Appointment of members by the Speaker of the House of Representatives shall be made after consultation with the chairman of the Committee on Armed Services of the House of Representatives, in addition to consultation with the chairman of the Committee on Ways and Means of the House of Representatives provided for under clause (iii) of subparagraph (A) of that section;

(B) Appointment of members by the President pro tempore of the Senate upon the recommendation of the majority leader of the Senate shall be made after consultation with the chairman of the Committee on Armed Services of the Senate, in addition to consultation with the chairman of the Committee on Finance of the Senate provided for under clause (i) of that subparagraph;

(C) Appointment of members by the President pro tempore of the Senate upon the recommendation of the minority leader of the Senate shall be made after consultation with the ranking minority member of the Committee on Armed Services of the Senate, in addition to consultation with the ranking minority member of the Committee on Finance of the Senate provided for under clause (ii) of that subparagraph;

(D) Appointment of members by the minority leader of the House of Representatives shall be made after consultation with the ranking minority member of the Committee on Armed Services of the House of Representatives, in addition to consultation with the ranking minority member of the Committee on Ways and Means of the House of Representatives provided for under clause (iv) of that subparagraph;

(E) Persons appointed to the Commission shall have expertise in national security matters and United States-China relations, in addition to the expertise provided for under subparagraph (B)(i)(I) of that section;

(F) Each appointing authority referred to under subparagraphs (A) through (D) of this paragraph shall—

(i) appoint 3 members to the Commission;

(ii) make the appointments on a staggered term basis, such that—

(I) 1 appointment shall be for a term expiring on December 31, 2003;

(II) 1 appointment shall be for a term expiring on December 31, 2004; and

(III) 1 appointment shall be for a term expiring on December 31, 2005;

(iii) make all subsequent appointments on an approximate 2-year term basis to expire on December 31 of the applicable year; and

(iv) make appointments not later than 30 days after the date on which each new Congress convenes.

(G) Members of the Commission may be reappointed for additional terms of service as members of the Commission; and

(H) Members of the Trade Deficit Review Commission as of the date of the enactment of this Act [enacted Oct. 30, 2000] shall serve as members of the United States-China Economic and Security Review Commission until such time as members are first appointed to the United States-China Economic and Security Review Commission under this paragraph.

(4) Retention of support. The United States-China Economic and Security Review Commission shall retain and make use of such staff, materials, and infrastructure (including leased premises) of the Trade Deficit Review Commission as the United States-China Economic and Security Review Commission determines, in the judgment of the members of the United States-China Economic and Security Review Commission, are required to facilitate the ready commencement of activities of the United States-China Economic and Security Review Commission under subsection (c) or to carry out such activities after the commencement of such activities.

(5) Chairman and vice chairman. The members of the Commission shall select a Chairman and Vice Chairman of the Commission from among the members of the Commission.

(6) Meetings.

(A) Meetings. The Commission shall meet at the call of the Chairman of the Commission.

(B) Quorum. A majority of the members of the Commission shall constitute a quorum for the transaction of business of the Commission.

(7) Voting. Each member of the Commission shall be entitled to one vote, which shall be equal to the vote of every other member of the Commission.

(c) Duties.

(1) Annual report. Not later than June 1 each year [beginning in 2002], the Commission shall submit to Congress a report, in both unclassified and classified form, regarding the national security implications and impact of the bilateral trade and economic relationship between the United States and the People's Republic of China. The report shall include a full analysis, along with conclusions and recommendations for legislative and administrative actions, if any, of the national security implications for the United States of the trade and current balances with the People's Republic of China in goods and services, financial transactions, and technology transfers. The Commission shall also take into account patterns of trade and transfers through third countries to the extent practicable.

(2) Contents of report. Each report under paragraph (1) shall include, at a minimum, a full discussion of the following:

(A) The portion of trade in goods and services with the United States that the People's Republic of China dedicates to military systems or systems of a dual nature that could be used for military purposes.

(B) The acquisition by the People's Republic of China of advanced military or dual-use technologies from the United States by trade (including procurement) and other technology transfers, especially those transfers, if any, that contribute to the proliferation of weapons of mass destruction or their delivery systems, or that undermine international agreements or United States laws with respect to nonproliferation.

(C) Any transfers, other than those identified under subparagraph (B), to the military systems of the People's Republic of China made by United States firms and United States-based multinational corporations.

(D) An analysis of the statements and writing of the People's Republic of China officials and officially-sanctioned writings that bear on the intentions, if any, of the Government of the People's Republic of China regarding the pursuit of military competition with, and leverage over, or cooperation with, the United States and the Asian allies of the United States.

(E) The military actions taken by the Government of the People's Republic of China during the preceding year that bear on the national security of the United States and the regional stability of the Asian allies of the United States.

(F) The effects, if any, on the national security interests of the United States of the use by the People's Republic of China of financial transactions and capital flow and currency manipulations.

(G) Any action taken by the Government of the People's Republic of China in the context of the World Trade Organization that is adverse or favorable to the United States national security interests.

(H) Patterns of trade and investment between the People's Republic of China and its major trading partners, other than the United States, that appear to be substantively different from trade and investment patterns with the United States and whether the differences have any national security implications for the United States.

(I) The extent to which the trade surplus of the People's Republic of China with the United States enhances the military budget of the People's Republic of China.

(J) An overall assessment of the state of the security challenges presented by the People's Republic of China to the United States and whether the security challenges are increasing or decreasing from previous years.

(3) Recommendations of report. Each report under paragraph (1) shall also include recommendations for action by Congress or the President, or both, including specific recommendations for the United States to invoke Article XXI (relating to security exceptions) of the General Agreement on Tariffs and Trade 1994 with respect to the People's Republic of China, as a result of any adverse impact on the national security interests of the United States.

(d) Hearings.

(1) In general. The Commission or, at its direction, any panel or member of the Commission, may for the purpose of carrying out the provisions of this section, hold hearings, sit and act at times and places, take testimony, receive evidence, and administer oaths to the extent that the Commission or any panel or member considers advisable.

(2) Information. The Commission may secure directly from the Department of Defense, the Central Intelligence Agency, and any other Federal department or agency information that the Commission considers necessary to enable the Commission to carry out its duties under this section, except the provision of intelligence information to the Commission shall be made with due regard for the protection from unauthorized disclosure of classified information relating to sensitive intelligence sources and methods or other exceptionally sensitive matters, under procedures approved by the Director of Central Intelligence.

(3) Security. The Office of Senate Security shall—

(A) provide classified storage and meeting and hearing spaces, when necessary, for the Commission; and

(B) assist members and staff of the Commission in obtaining security clearances.

(4) Security clearances. All members of the Commission and appropriate staff shall be sworn and hold appropriate security clearances.

(e) Commission personnel matters.

(1) Compensation of members. Members of the United States-China Economic and Security Review Commission shall be compensated in the same manner provided for the compensation of members of the Trade Deficit Review Commission under section 127(g)(1) and section 127(g)(6) of the Trade Deficit Review Commission Act [19 U.S.C. 2213 note].

(2) Travel expenses. Travel expenses of the United States-China Economic and Security Review Commission shall be allowed in the same manner provided for the allowance of the travel expenses of the Trade Deficit Review Commission under section 127(g)(2) of the Trade Deficit Review Commission Act [19 U.S.C. § 2213 note].

(3) Staff. An executive director and other additional personnel for the United States-China Economic and Security Review Commission shall be appointed, compensated, and terminated in the same manner provided for the appointment, compensation, and termination of the executive director and other personnel of the Trade Deficit Review Commission under section 127(g)(3) and section 127(g)(6) of the Trade Deficit Review Commission Act [19 U.S.C. § 2213 note]. The executive director and any personnel who are employees of the United States-China Economic and Security Review Commission shall be employees under section 2105 of title 5, United States Code, for purposes of chapters 63, 81, 83, 84, 85, 87, 89, and 90 of that title [language of 2001 amendment, Sec. 645].

(4) Detail of government employees. Federal Government employees may be detailed to the United States-China Economic and Security Review Commission in the same manner provided for the detail of Federal Government employees to the Trade Deficit Review Commission under section 127(g)(4) of the Trade Deficit Review Commission Act [19 U.S.C. § 2213 note].

(5) Foreign travel for official purposes. Foreign travel for official purposes by members and staff of the Commission may be authorized by either the Chairman or the Vice Chairman of the Commission.

(6) Procurement of temporary and intermittent services. The Chairman of the United States-China Economic and Security Re-

view Commission may procure temporary and intermittent services for the United States-China Economic and Security Review Commission in the same manner provided for the procurement of temporary and intermittent services for the Trade Deficit Review Commission under section 127(g)(5) of the Trade Deficit Review Commission Act [19 U.S.C. § 2213 note].

(f) Authorization of appropriations.

(1) In general. There is authorized to be appropriated to the Commission for fiscal year 2001, and for each fiscal year thereafter, such sums as may be necessary to enable the Commission to carry out its functions under this section.

(2) Availability. Amounts appropriated to the Commission shall remain available until expended.

(g) Federal Advisory Committee Act. The provisions of the Federal Advisory Committee Act (5 U.S.C. App.) shall not apply to the Commission.

(h) Effective date. This section shall take effect on the first day of the 107th Congress.

Amendments:

SEC. 645. (a) Section 1238(e)(3) of the Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001 (as enacted by Public Law 106–398) is amended by adding at the end the following: “The executive director and any personnel who are employees of the United States-China Economic and Security Review Commission shall be employees under section 2105 of title 5, United States Code, for purposes of chapters 63, 81, 83, 84, 85, 87, 89, and 90 of that title.” (b) The amendment made by this section shall take effect on January 3, 2001.”

SEC. 648. DEADLINE FOR SUBMISSION OF ANNUAL REPORTS BY UNITED STATES-CHINA ECONOMIC AND SECURITY REVIEW COMMISSION. Section 1238(c)(1) of the Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001 (as enacted into law by section I of Public Law 106–398) is amended by striking “March” and inserting “June”.

Changes: Enacted into law by Division P of the “Consolidated Appropriations Resolution, 2003” Pub. L. No. 108–7 dated February 20, 2003:

H. J. Res. 2—

DIVISION P—UNITED STATES-CHINA ECONOMIC AND SECURITY REVIEW COMMISSION

SECTION 1. SHORT TITLE.—This division may be cited as the “United States-China Economic and Security Review Commission”.

SEC. 2. (a) APPROPRIATIONS.—There are appropriated, out of any funds in the Treasury not otherwise appropriated, \$1,800,000, to remain available until expended, to the United States-China Economic and Security Review Commission.

(b) NAME CHANGE.—

(1) IN GENERAL.—Section 1238 of the Floyd D. Spence National Defense Authorization Act of 2001 (22 U.S.C. 7002) is amended— as follows:

In each Section and Subsection where it appears, the name is changed to the “U.S.-CHINA ECONOMIC AND SECURITY REVIEW COMMISSION”—

(2) REFERENCES.—Any reference in any Federal law, Executive Order, rule, regulation, or delegation of authority, or any document of or relating to the United States-China Security Review Commission shall be deemed to refer to the United States-China Economic and Security Review Commission.

(c) MEMBERSHIP, RESPONSIBILITIES, AND TERMS.—

(1) IN GENERAL.—Section 1238(b)(3) of the Floyd D. Spence National Defense Authorization Act of 2001 (22 U.S.C. 7002) is amended by striking subparagraph (F) and inserting the following:

“(F) each appointing authority referred to under subparagraphs (A) through (D) of this paragraph shall—

“(i) appoint 3 members to the Commission;

“(ii) make the appointments on a staggered term basis, such that—

“(I) 1 appointment shall be for a term expiring on December 31, 2003;

“(II) 1 appointment shall be for a term expiring on December 31, 2004; and

“(III) 1 appointment shall be for a term expiring on December 31, 2005;

“(iii) make all subsequent appointments on an approximate 2-year term basis to expire on December 31 of the applicable year; and

“(iv) make appointments not later than 30 days after the date on which each new Congress convenes;”.

SEC. 635. (a) Modification of Responsibilities.—Notwithstanding any provision of section 1238 of the Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001 (22 U.S.C. 7002), or any other provision of law, the United States-China Economic and Security Review Commission established by subsection (b) of that section shall investigate and report exclusively on each of the following areas:

(1) PROLIFERATION PRACTICES.—The role of the People’s Republic of China in the proliferation of weapons of mass destruction and other weapons (including dual use technologies), including actions, the United States might take to encourage the People’s Republic of China to cease such practices.

(2) ECONOMIC TRANSFERS.—The qualitative and quantitative nature of the transfer of United States production activities to the People’s Republic of China, including the relocation of high technology, manufacturing, and research and development facilities, the impact of such transfers on United States national security, the adequacy of United States export control laws, and the effect of such transfers on United States economic security and employment.

(3) ENERGY.—The effect of the large and growing economy of the People’s Republic of China on world energy supplies and the role the United States can play (including joint research and development efforts and technological assistance), in influencing the energy policy of the People’s Republic of China.

(4) UNITED STATES CAPITAL MARKETS.—The extent of access to and use of United States capital markets by the People's Republic of China, including whether or not existing disclosure and transparency rules are adequate to identify People's Republic of China companies engaged in harmful activities.

(5) REGIONAL ECONOMIC AND SECURITY IMPACTS.—The triangular economic and security relationship among the United States, Taipei and the People's Republic of China (including the military modernization and force deployments of the People's Republic of China aimed at Taipei), the national budget of the People's Republic of China, and the fiscal strength of the People's Republic of China in relation to internal instability in the People's Republic of China and the likelihood of the externalization of problems arising from such internal instability.

(6) UNITED STATES-CHINA BILATERAL PROGRAMS.—Science and technology programs, the degree of non-compliance by the People's Republic of China with agreements between the United States and the People's Republic of China on prison labor imports and intellectual property rights, and United States enforcement policies with respect to such agreements.

(7) WORLD TRADE ORGANIZATION COMPLIANCE.—The compliance of the People's Republic of China with its accession agreement to the World Trade Organization (WTO).

(8) FREEDOM OF EXPRESSION.—The implications of restrictions on speech and access to information in the People's Republic of China for its relations with the United States in the areas of economic and security policy.

(b) Applicability of Federal Advisory Committee Act.—Subsection (g) of section 1238 of the Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001 is amended to read as follows:

(g) Applicability of FACA.—The provisions of the Federal Advisory Committee Act (5 U.S.C. App.) shall apply to the activities of the Commission.

The effective date of these amendments shall take effect on the date of enactment of this Act [November 22, 2005].

Changes: Enacted into law by the Consolidated Appropriations Act, 2008, Pub. L. No. 110–161 dated December 26, 2007:

H.R. 2764—

For necessary expenses of the United States-China Economic and Security Review Commission, \$4,000,000, including not more than \$4,000 for the purpose of official representation, to remain available until September 30, 2009: *Provided*, That the Commission shall submit a spending plan to the Committees on Appropriations no later than March 1, 2008, which effectively addresses the recommendations of the Government Accountability Office's audit of the Commission (GAO–07–1128): *Provided further*, That the Commission shall provide to the Committees on Appropriations a quarterly accounting of the cumulative balances of any unobligated funds that were received by the Commission during any previous fiscal year: *Provided further*, That for purposes of costs relating to printing and binding, the Commission shall be deemed, effective on the date of its establishment, to be a committee of Congress: *Provided further*, That compensation for the executive director of the Commission may not exceed the rate payable for level II of the Ex-

ecutive Schedule under section 5314 of title 5, United States Code: *Provided further*, That section 1238(c)(1) of the Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001, is amended by striking “June” and inserting “December”: *Provided further*, That travel by members of the Commission and its staff shall be arranged and conducted under the rules and procedures applying to travel by members of the House of Representatives and its staff.

COMMISSION FINANCIAL MANAGEMENT

SEC. 118. (a) REQUIREMENT FOR PERFORMANCE REVIEWS.—The United States-China Economic and Security Review Commission shall comply with chapter 43 of title 5, United States Code, regarding the establishment and regular review of employee performance appraisals.

(b) LIMITATION ON CASH AWARDS.—The United States-China Economic and Security Review Commission shall comply with section 4505a of title 5, United States Code, with respect to limitations on payment of performance-based cash awards.

APPENDIX II

BACKGROUND OF COMMISSIONERS

Daniel M. Slane, Chairman

Daniel Slane was reappointed to the Commission by House Republican Leader John Boehner for a two-year term expiring on December 31, 2011. Chairman Slane was unanimously elected as the Commission's Chairman for the 2010 report cycle.

Chairman Slane served for two years on active duty as a U.S. Army Captain in Military Intelligence; in addition he served for a number of years as a case officer with the U.S. Central Intelligence Agency. Chairman Slane worked in the White House during the Ford Administration.

In 1996, Chairman Slane became a member of the Board of Trustees of the Ohio State University, and was chairman from 2005–2006. Ohio State University is the nation's largest university, with an annual budget of over \$4 billion. He is also the former chairman of University Hospital, a 1,000 bed regional hospital in Columbus, and the former chairman of the James Cancer Hospital, a National Cancer Institute Comprehensive Cancer Center. Chairman Slane serves on the board of two financial institutions and a number of nonprofit organizations.

Chairman Slane is the founder and co-owner of the Slane Company, whose principal business includes real estate development, lumber, and furniture. Chairman Slane has extensive international business experience, including operating a business in China. Prior to becoming a member of the Commission, Chairman Slane manufactured plywood and related wood products at factories in Harbin, Dalian, and Balu (Pizhou), China. In 2007, he sold his interest in that company.

Chairman Slane received a Bachelor of Science in Business Administration and a Juris Doctorate from the Ohio State University. He holds a Master's Degree in International Law from the Europa Institute at the University of Amsterdam in the Netherlands. Chairman Slane is a member of the Ohio Bar and formerly a partner in the law firm of Grieser, Schafer, Blumenstiel, and Slane.

Carolyn Bartholomew, Vice Chairman

Carolyn Bartholomew was reappointed to the Commission by House Speaker Nancy Pelosi for a two-year term expiring on December 31, 2011. Vice Chairman Bartholomew was elected as the Commission's vice chairman for the 2010 report cycle and previously served as the Commission's Chairman for the 2007 and 2009 report cycles and served as the vice chairman for the 2006 and 2008 report cycles.

Vice Chairman Bartholomew has worked at senior levels in the U.S. Congress, serving as counsel, legislative director, and chief of staff to now House Democratic Leader Nancy Pelosi. Vice Chairman Bartholomew was a professional staff member on the House Permanent Select Committee on Intelligence. She was also a legislative assistant to then-U.S. Representative Bill Richardson.

In these positions, Vice Chairman Bartholomew was integrally involved in developing U.S. policies on international affairs and security matters. She has particular expertise in U.S.-China relations, including issues related to trade, human rights, and the proliferation of weapons of mass destruction. Vice Chairman Bartholomew led efforts in the establishment and funding of global AIDS programs and the promotion of human rights and democratization in countries around the world. The vice chairman was a member of the first Presidential Delegation to Africa to Investigate the Impact of HIV/AIDS on Children, and a member of the Council on Foreign Relations Congressional Staff Roundtable on Asian Political and Security Issues.

In addition to U.S.-China relations, the vice chairman's areas of expertise include terrorism, trade, proliferation of weapons of mass destruction, human rights, U.S. foreign assistance programs, and international environmental issues.

Currently, Vice Chairman Bartholomew serves on the Board of Directors of the Kaiser Aluminum Corporation and the nonprofit organizations Polaris Project and Asia Catalyst.

Vice Chairman Bartholomew received a Bachelor of Arts degree from the University of Minnesota, a Master of Arts in Anthropology from Duke University, and a Juris Doctorate from Georgetown University Law Center. The vice chairman is a member of the state bar of California.

Daniel A. Blumenthal

Daniel Blumenthal was reappointed to the Commission by Senate Republican Leader Mitch McConnell for a two-year term expiring December 31, 2011. Commissioner Blumenthal served as the Commission's vice chairman for the 2007 report cycle.

Commissioner Blumenthal was the country director for China, Taiwan, and Hong Kong in the Office of the Assistant Secretary of Defense for International Security Affairs, later becoming a senior director for China, Taiwan, Hong Kong, and Mongolia during the first term of President George W. Bush. Commissioner Blumenthal developed and implemented defense policy toward China, Taiwan, Hong Kong, and Mongolia. Commissioner Blumenthal was awarded the Office of the Secretary of Defense Medal for Exceptional Public Service.

Prior to joining the Defense Department, Commissioner Blumenthal was an associate attorney in the Corporate and Asia Practice Groups at Kelly Drye & Warren LLP. Earlier, he was an editorial and research assistant for *Near East Policy*.

Today, Commissioner Blumenthal is a resident fellow in Asian Studies at the American Enterprise Institute for Public Policy Research, and a research associate with the National Asia Research Program. He is a member of the Academic Advisory Group of the Congressional U.S.-China Working Group and has been a member

of the Project 2049 Institute's Board of Advisors since 2008. In addition, Commissioner Blumenthal has written extensively on national security issues.

Mr. Blumenthal received a Master of Arts in International Relations and International Economics from the Johns Hopkins University School of Advanced International Studies and a Juris Doctorate from Duke University.

Peter T.R. Brookes

Commissioner Brookes was reappointed to the Commission by House Republican Leader John Boehner for a two-year term expiring December 31, 2011.

Commissioner Brookes served in the George W. Bush Administration as the deputy assistant secretary of Defense for Asian and Pacific Affairs. Prior to joining the Bush Administration, Commissioner Brookes was a professional staff member with the Committee on International Relations in the U.S. House of Representatives. Before his service in the Congress, Commissioner Brookes worked in the Central Intelligence Agency and for the State Department at the United Nations.

Now, Commissioner Brookes is a senior fellow at The Heritage Foundation and works to develop and communicate the foundation's stance on foreign policy and national security affairs through media appearances, research, published articles, congressional testimony, and speaking engagements. Commissioner Brookes writes for the *New York Post* and is a contributing editor for the *Armed Forces Journal* and *Townhall* magazines. Commissioner Brookes has published more than 300 articles in over 50 newspapers, journals, and magazines.

Commissioner Brookes is the author of *A Devil's Triangle: Terrorism, Weapons of Mass Destruction and Rogue States*. Commissioner Brookes has made many appearances as a commentator on television and radio, and has been quoted by many of the world's largest newspapers and magazines. He is a frequent public speaker both in the United States and abroad, including testifying before both the U.S. Senate and House of Representatives on foreign policy, defense, and intelligence issues as an administration official and a private citizen.

Commissioner Brookes is a decorated military veteran, having served on active duty with the U.S. Navy in Latin America, Asia, and the Middle East. He is a graduate of the U.S. Naval Academy, the Defense Language Institute, the Naval War College, and the Johns Hopkins University.

Robin Cleveland

Commissioner Cleveland is a principal with Olivet Consulting. Commissioner Cleveland has three decades of legislative, management, budget, and policy experience in national security and international economic and development affairs. She has served as the counselor to the president of the World Bank and as the associate director of the Office of Management and Budget at the White House. In addition, Commissioner Cleveland has worked in a variety of positions serving U.S. Senator Mitch McConnell on the Senate Intelligence Committee, Foreign Relations Committee, and Ap-

appropriations Committee. During her tenure in the White House, Commissioner Cleveland co-led the interagency effort to develop two presidential initiatives: the Millennium Challenge Corporation and the President's Emergency Plan for AIDS Relief. These efforts reflect her experience linking policy, performance, and resource management.

Commissioner Cleveland graduated from Wesleyan University with honors.

Jeffrey L. Fiedler

Commissioner Fiedler was reappointed to the Commission by House Speaker Nancy Pelosi on December 16, 2009, for a third term expiring December 31, 2011. Commissioner Fiedler is Assistant to the general president, and director, Special Projects and Initiatives, for the International Union of Operating Engineers. Previously, he was President of Research Associates of America (RAA) and the elected President of the Food and Allied Service Trades Department, AFL-CIO ("FAST"). This constitutional department of the AFL-CIO represented ten unions with a membership of 3.5 million in the United States and Canada. The focus of RAA, like FAST before it, was organizing and bargaining research for workers and their unions.

He served as a member of the AFL-CIO Executive Council committees on International Affairs, Immigration, Organizing, and Strategic Approaches. He also served on the Board of Directors of the Consumer Federation of America and is a member of the Council on Foreign Relations.

In 1992, Commissioner Fiedler co-founded the Laogai Research Foundation (LRF), an organization devoted to studying the forced labor camp system in China. When the foundation's executive director, Harry Wu, was detained in China in 1995, Commissioner Fiedler coordinated the campaign to win his release. He still serves as a director of the LRF.

Commissioner Fiedler has testified on behalf of the AFL-CIO before the Senate Foreign Relations Committee and the House International Affairs Committee and its various subcommittees, as well as the Trade Subcommittee of the House Ways and Means Committee concerning China policy. He attended three of the American Assembly conferences on China sponsored by Columbia University and has participated in a Council on Foreign Relations task force and study group on China. He has been interviewed on CBS, NBC, ABC, CNN, and CNBC on China policy, international trade issues, human rights, and child labor.

A Vietnam veteran, Commissioner Fiedler served with the U.S. Army in Hue in 1967-68. He received his B.A. in Political Science from Southern Illinois University. He is married with two adult children and resides in Virginia.

The Honorable Patrick A. Mulloy

Commissioner Patrick Mulloy has served four two-year terms as a commissioner and was reappointed in 2009 by Senate Democratic Leader Harry Reid for a new two-year term expiring December 31, 2011.

Commissioner Mulloy served as assistant secretary of Commerce for Market Access and Compliance in the department's International Trade Administration during the Clinton Administration. As assistant secretary, Commissioner Mulloy directed a trade policy unit of over 200 international trade specialists, which focused worldwide on removing foreign barriers to U.S. exports and on ensuring that foreign countries complied with trade agreements negotiated with the United States. This activity involved discussions both in the World Trade Organization and with individual governments. Commissioner Mulloy traveled extensively, meeting with foreign leaders to advance market-opening programs in the European Union, China, India, Taiwan, Indonesia, Canada, and Central and South America. He was also appointed by President Clinton to serve as a member of the Commission on Security and Cooperation in Europe.

Before becoming assistant secretary, Commissioner Mulloy held various senior positions on the staff of the U.S. Senate Banking Committee, including chief international counsel and general counsel. In those positions, he contributed to much of the international trade and finance legislation formulated by the committee, such as the Foreign Bank Supervision Enhancement Act of 1991, the Export Enhancement Act of 1992, the Defense Production Act Amendments of 1994, and titles of the Omnibus Trade and Competitiveness Act of 1988 that dealt with foreign bribery, foreign investment, exchange rates, and export controls.

Prior to his work in the Senate, Commissioner Mulloy was a senior attorney in the Antitrust Division of the Department of Justice, where he directed a staff of lawyers and economists, who supervised participation of U.S. oil companies in the Paris-based International Energy Agency. In earlier duties at the Justice Department, he represented the United States in a variety of cases related to federal environmental laws, including criminal and civil enforcement actions in various U.S. District Courts, several Circuit Courts of Appeal, and the U.S. Supreme Court.

Commissioner Mulloy began his public service career as a Foreign Service Officer, where he served in the Department of State's Office of United Nations Political Affairs, the Office of International Environmental and Oceans Affairs, and as vice counsel in the U.S. Consulate in Montreal, Canada.

Today, Commissioner Mulloy is a consultant to the president emeritus of the Alfred P. Sloan Foundation and is an adjunct professor of International Trade Law at the law schools of Catholic University and George Mason University. He is a member of the Asia Society and the Washington International Trade Association and serves on the Advisory Board of the Center for the Study of the Presidency and Congress. He has several times testified on international trade and investment matters before committees of the U.S. Senate and the House of Representatives.

Commissioner Mulloy, a native of Kingston, Pennsylvania, holds an LL.M. from Harvard University Law School, a Juris Doctorate from the George Washington University Law School, a Master of Arts from the University of Notre Dame, and a Bachelor of Arts from King's College. Commissioner Mulloy is a member of the District of Columbia and Pennsylvania Bars. He resides in Alexandria,

Virginia, with his wife Marjorie, and they have three adult children.

The Honorable William A. Reinsch

Commissioner William Reinsch was reappointed to the Commission by Senate Democratic Leader Harry Reid for a term expiring December 31, 2011.

Commissioner Reinsch served as under secretary for Export Administration in the U.S. Department of Commerce. As head of the Bureau of Export Administration, later named the Bureau of Industry and Security, Commissioner Reinsch was charged with administering and enforcing the export control policies of the U.S. Government, including its anti-boycott laws. Major accomplishments during his tenure included refocusing controls regarding economic globalization, most notably on high-performance computers, microprocessors, and encryption, completing the first revisions of the Export Administration regulations in over 40 years. In addition, he revised the interagency process for reviewing applications and permitted electronic filing of applications over the Internet. During this time, Commissioner Reinsch delivered more than 200 speeches and testified 53 times before various committees of the Congress.

Before joining the Department of Commerce, Commissioner Reinsch was a senior legislative assistant to Senator John Rockefeller and was responsible for the senator's work on trade, international economic policy, foreign affairs, and defense. He also provided staff support for Senator Rockefeller's related efforts on the Finance Committee and the Commerce, Science, and Transportation Committee.

For over a decade, Commissioner Reinsch served on the staff of Senator John Heinz as chief legislative assistant, focusing on foreign trade and competitiveness policy issues. During that period, Senator Heinz was either the chairman or the ranking member of the Senate Banking Committee's Subcommittee on International Finance. Senator Heinz was also a member of the International Trade Subcommittee of the Finance Committee. Commissioner Reinsch provided support for the senator on both subcommittees. This work included five revisions of the Export Administration Act and work on four major trade bills. Prior to joining Senator Heinz's staff, Commissioner Reinsch was a legislative assistant to Representatives Richard Ottinger and Gilbert Gude, acting staff director of the House Environmental Study Conference, and a teacher in Maryland.

Today Commissioner Reinsch is president of the National Foreign Trade Council. Founded in 1914, the council is the only business organization dedicated solely to trade policy, export finance, international tax, and human resources issues. The organization represents over 300 companies through its offices in New York City and Washington.

In addition to his legislative and private sector work, Commissioner Reinsch served as an adjunct associate professor at the University of Maryland University College Graduate School of Management and Technology, teaching a course in international trade and trade policy. He is also a member of the boards of the Middle East

Institute, the Executive Council on Diplomacy, and KHI Services, Incorporated.

Commissioner Reinsch's publications include "Why China Matters to the Health of the U.S. Economy," published in *Economics and National Security*; and "The Role and Effectiveness of U.S. Export Control Policy in the Age of Globalization" and "Export Controls in the Age of Globalization," both published in *The Monitor*. In addition, Commissioner Reinsch has published "Should Uncle Sam Control U.S. Technology Exports," published in *Insight Magazine*; "Encryption Policy Strikes a Balance," published in the *Journal of Commerce*; and "Building a New Economic Relationship with Japan," published with others in *Beyond the Beltway: Engaging the Public in U.S. Foreign Policy*.

The Honorable Dennis C. Shea

Commissioner Dennis Shea was reappointed by Senate Republican Leader Mitch McConnell for a two-year term expiring December 31, 2010. An attorney with more than 20 years of experience in government and public policy, he is the founder of Shea Public Strategies LLC, a government relations firm based in Alexandria, Virginia. Before starting the firm, he served as vice president for Government Affairs—Americas for Pitney Bowes Inc., a Fortune 500 company.

Commissioner Shea's government service began in 1988, when he joined the Office of Senate Republican Leader Bob Dole as counsel, subsequently becoming the senator's deputy chief of staff in the Office of the Senate Majority Leader. In these capacities, he advised Senator Dole and other Republican senators on a broad range of domestic policy issues, was involved in the drafting of numerous pieces of legislation, and was recognized as one of the most influential staffers on Capitol Hill. In 1992, Commissioner Shea's service with Senator Dole was interrupted when he ran for Congress in the Seventh District of New York.

During the 1996 elections, Commissioner Shea continued to help shape the national public policy debate as the director of policy for the Dole for President campaign. Following the elections, he entered the private sector, providing legislative and public affairs counsel to a wide range of clients while employed at BKSH & Associates and Verner, Liipfert, Bernhard, McPherson, and Hand.

In 2003, Commissioner Shea was named the executive director of the President's Commission on the United States Postal Service. Many of the commission's recommendations were subsequently adopted in the landmark 2006 postal reform legislation.

In 2004, Commissioner Shea was confirmed as assistant secretary for Policy Development and Research at the U.S. Department of Housing and Urban Development. As assistant secretary, Commissioner Shea led a team responsible for conducting much of the critical analysis necessary to support the department's mission. In 2005, Commissioner Shea left to serve as senior advisor to Senator Elizabeth Dole in her capacity as chairman of the National Republican Senatorial Committee.

Commissioner Shea received a J.D., an M.A. in History, and a B.A. in Government, from Harvard University. He is admitted to the bar in New York and the District of Columbia. The Commis-

sioner currently resides in Alexandria, Virginia, with his wife Elizabeth and daughter Juliette.

Peter Videnieks

Commissioner Videnieks has served on the Commission since January 2007.

Prior to his appointment, Commissioner Videnieks served on the staff of Senator Robert Byrd as an advisor on international affairs and energy issues. He also served on the staffs of the U.S. Trade Deficit Review Commission and the U.S.-China Economic and Security Review Commission. Commissioner Videnieks was previously a contracting officer for NASA, the Department of Justice, and a Division Director with U.S. Customs. He has also served as a revenue officer with the IRS.

Commissioner Videnieks received his Bachelor of Arts in Economics from the University of Maryland and his Master of Science in Administration with a concentration in procurement and contracting from the George Washington University. Born in Latvia, Commissioner Videnieks lives with his wife Barbara on a farm in Northern Virginia.

Michael R. Wessel

Commissioner Michael R. Wessel, an original member of the U.S.-China Economic and Security Review Commission, was reappointed by House Speaker Nancy Pelosi for a two-year term expiring December 31, 2010.

Commissioner Wessel served on the staff of House Democratic Leader Richard Gephardt for more than two decades, leaving his position as general counsel in March 1998. In addition, Commissioner Wessel was Congressman Gephardt's chief policy advisor, strategist, and negotiator. He was responsible for the development, coordination, management, and implementation of the Democratic leader's overall policy and political objectives, with specific responsibility for international trade, finance, economics, labor, and taxation.

During his more than 20 years on Capitol Hill, Commissioner Wessel served in a number of positions: as Congressman Gephardt's principal Ways and Means aide, where he developed and implemented numerous tax and trade policy initiatives. He participated in the enactment of every major trade policy initiative from 1978 until his departure in 1998. In the late 1980s, he was the executive director of the House Trade and Competitiveness Task Force, where he was responsible for the Democrats' trade and competitiveness agenda as well as overall coordination of the Omnibus Trade and Competitiveness Act of 1988.

Commissioner Wessel was intimately involved in the development of comprehensive tax reform legislation in the early 1980s and every major tax bill during his tenure. Beginning in 1989, he became the principal advisor to the Democratic leadership on economic policy matters and served as tax policy coordinator to the 1990 budget summit. In 1995, he developed the Ten Percent Tax Plan, a comprehensive tax reform initiative that would enable roughly four out of five taxpayers to pay no more than a 10 percent

rate in federal income taxes; the principal Democratic tax reform alternative.

In 1988, he served as national issues director for Congressman Gephardt's presidential campaign. During the 1992 presidential campaign, he assisted the Clinton presidential campaign on a broad range of issues and served as a senior policy advisor to the Clinton Transition Office. In 2004, he was a senior policy advisor to the Gephardt for President Campaign and later co-chaired the Trade Policy Group for the Kerry presidential campaign. In 2008, he was publicly identified as a trade and economic policy advisor to the Obama presidential campaign.

He has coauthored a number of articles with Congressman Gephardt and a book, *An Even Better Place: America in the 21st Century*. Commissioner Wessel served as a member of the U.S. Trade Deficit Review Commission in 1999–2000, a congressionally created commission charged with studying the nature, causes, and consequences of the U.S. merchandise trade and current account deficits.

Today, Commissioner Wessel is president of The Wessel Group Incorporated, a public affairs consulting firm offering expertise in government, politics, and international affairs. He was formerly the executive vice president at the Downey McGrath Group, Incorporated. Commissioner Wessel is a member of the Board of Directors of Goodyear Tire and Rubber.

Commissioner Wessel holds a Bachelor of Arts and a Juris Doctorate from the George Washington University. He is a member of the bar of the District of Columbia and Pennsylvania and is a member of the Council on Foreign Relations. He and his wife Andrea have four children.

Larry M. Wortzel, Ph.D.

Larry Wortzel was reappointed by House Republican Leader John Boehner for a two-year term expiring December 31, 2010. Wortzel has served on the Commission since November 2001, was the Commission's chairman for the 2006 and 2009 report cycles, and served as vice chairman for the 2009 report cycle.

A leading authority on China, Asia, national security, and military strategy, Commissioner Wortzel had a distinguished career in the U.S. Armed Forces. Following three years in the Marine Corps, Commissioner Wortzel enlisted in the U.S. Army in 1970. His first assignment with the Army Security Agency took him to Thailand, where he focused on Chinese military communications in Vietnam and Laos. Within three years, he had graduated from the Infantry Officer Candidate School and the Airborne and Ranger schools. After four years as an infantry officer, Commissioner Wortzel shifted to military intelligence. Commissioner Wortzel traveled regularly throughout Asia while serving in the U.S. Pacific Command from 1978 to 1982. The following year, he attended the National University of Singapore, where he studied advanced Chinese and traveled in China and Southeast Asia. He next worked for the under secretary of Defense for Policy, developing counterintelligence programs to protect emerging defense technologies from foreign espionage. Also, the Commissioner managed programs to gath-

er foreign intelligence for the Army Intelligence and Security Command.

From 1988 to 1990, Commissioner Wortzel was the assistant army attaché at the U.S. embassy in Beijing, where he witnessed and reported on the Tiananmen Massacre. After assignments as an army strategist and managing army intelligence officers, he returned to China in 1995 as the army attaché. In December 1997, Commissioner Wortzel became a faculty member of the U.S. Army War College, and served as the director of the Strategic Studies Institute. He retired from the army as a colonel.

Before his appointment to the U.S.-China Commission, Commissioner Wortzel served as the director of the Asian Studies Center and vice president for foreign policy at The Heritage Foundation.

Commissioner Wortzel's books include *Class in China: Stratification in a Classless Society*; *China's Military Modernization: International Implications*; *The Chinese Armed Forces in the 21st Century*; and *Dictionary of Contemporary Chinese Military History*. Commissioner Wortzel regularly publishes articles on Asian security matters.

A graduate of the Armed Forces Staff College and the U.S. Army War College, Commissioner Wortzel earned his Bachelor of Arts from Columbus College and his Master of Arts and PhD. from the University of Hawaii. He and his wife, Christine, live in Williamsburg, Virginia. They have two married sons and two grandchildren.

Michael R. Danis, Executive Director

Michael Danis served as an intelligence officer with the Defense Intelligence Agency for the past 25 years. Before joining the U.S.-China Commission, Mr. Danis managed the agency's technology transfer division. This division is the U.S. government's sole analytical entity tasked with producing intelligence assessments regarding all aspects of foreign acquisition of U.S. controlled technology and high-technology corporations. Mr. Danis also established and led a unique team of China technology specialists producing assessments on China's military-industrial complex and the impact of U.S. export-controlled and other foreign technology on Chinese weapons development programs. While serving in the U.S. Air Force, Mr. Danis was twice temporarily assigned to the Office of the Defense Attaché in Beijing.

APPENDIX III

PUBLIC HEARINGS OF THE COMMISSION

<p>Full transcripts and written testimonies are available online at the Commission's Web Site: www.uscc.gov.</p>
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February 4, 2010: Public Hearing on “China’s Activities in Southeast Asia and the Implications for U.S. Interests” Washington, DC

Commissioners present: Daniel M. Slane, Chairman; Carolyn Bartholomew, Vice Chairman (Hearing Co-Chair); Robin Cleveland; Jeffrey L. Fiedler; Hon. Patrick A. Mulloy; Hon. William A. Reinsch; Hon. Dennis C. Shea; Peter Videnieks; Larry M. Wortzel (Hearing Co-Chair).

Congressional Perspectives: Hon. Madeleine Z. Bordallo, U.S. Representative from the Territory of Guam; Hon. Eni Faleomavaega, U.S. Representative from the Territory of American Samoa; Hon. J. Randy Forbes, U.S. Representative from the state of Virginia; Hon. Dana Rohrabacher, U.S. Representative from the state of California.

Witnesses: David B. Shear, U.S. Department of State; Robert Scher, U.S. Department of Defense; Catharin Dalpino, Georgetown University; Ernest Z. Bower, Center for Strategic and International Studies; Walter Lohman, The Heritage Foundation; Andrew Scobell, Texas A&M University; Bronson Percival, CNA; Richard P. Cronin, Henry L. Stimson Center; Ellen L. Frost, PhD., INNS National Defense University.

February 25, 2010: Public Hearing on “U.S. Debt to China: Implications and Repercussions” Washington, DC

Commissioners present: Daniel M. Slane, Chairman; Carolyn Bartholomew, Vice Chairman; Daniel A. Blumenthal; Robin Cleveland (Hearing Co-Chair); Hon. Patrick A. Mulloy; Hon. William A. Reinsch; Hon. Dennis C. Shea; Peter Videnieks; Michael R. Wessel (Hearing Co-Chair); Larry M. Wortzel.

Congressional Perspectives: Hon. Frank Wolf, U.S. Representative from the state of Virginia.

Witnesses: Clyde Prestowitz, Economic Strategy Institute; Simon Johnson, Massachusetts Institute of Technology; Derek Scissors, The Heritage Foundation; Leo Hindery, Jr., InterMedia Partners VII; Eswar S. Prasad, Cornell University; Daniel W. Drezner, Tufts University.

**March 18, 2010: Public Hearing on “Taiwan-China: Recent Economic, Political, and Military Developments across the Strait, and Implications for the United States”
Washington, DC**

Commissioners present: Daniel M. Slane, Chairman; Daniel Blumenthal; Robin Cleveland; Jeffrey L. Fiedler; Hon. Patrick A. Mulloy (Hearing Co-Chair); Hon. William A. Reinsch; Hon. Dennis C. Shea; Peter Videnieks; Michael R. Wessel; Larry M. Wortzel (Hearing Co-Chair).

Congressional Perspectives: Hon. Sherrod Brown, U.S. Senator from the state of Ohio; Hon. Lincoln Diaz-Balart, U.S. Representative from the state of Florida; Hon. Phil Gingrey, U.S. Representative from the state of Georgia.

Witnesses: David B. Shear, U.S. Department of State; R. Michael Schiffer, U.S. Department of Defense; Mark A. Stokes, Project 2049 Institute; Albert S. Willner, PhD., CNA; David Shlapak, The RAND Corporation; Merritt T. Cooke, GC3 Strategy; Rupert Hammond-Chambers, U.S.-Taiwan Business Council; Scott L. Kastner, University of Maryland; Randall G. Schriver, Project 2049 Institute; Shelley Rigger, Davidson College; Richard C. Bush, The Brookings Institution.

**April 8, 2010: Public Hearing on “China’s Green Energy and Environmental Policies”
Washington, DC**

Commissioners present: Daniel M. Slane, Chairman; Carolyn Bartholomew, Vice Chairman; Robin Cleveland; Jeffrey L. Fiedler; Hon. Patrick A. Mulloy; Hon. William A. Reinsch (Hearing Co-Chair); Hon. Dennis C. Shea (Hearing Co-Chair); Peter Videnieks; Michael R. Wessel.

Witnesses: David Sandalow, U.S. Department of Energy; Michelle J. Depass, U.S. Environmental Protection Agency; Jennifer L. Turner, Woodrow Wilson Center; Stephen A. Hammer, PhD., Energy Smart Cities Initiative; Thomas R. Howell, Dewey & LeBoeuf LLP; Elizabeth C. Economy, Council on Foreign Relations; Angel Hsu, Yale University; Rob Bradley, World Resources Institute; L. Cartan Sumner, Jr., Peabody Energy; Dennis Bracy, U.S.-China Clean Energy Forum; Albert Trampusch, American Intellectual Property Law Association.

**May 20, 2010: Public Hearing on “China’s Emergent Military Aerospace and Commercial Aviation Capabilities”
Washington, DC**

Commissioners present: Carolyn Bartholomew, Vice Chairman; Daniel A. Blumenthal (Hearing Co-Chair); Peter T.R. Brookes; Robin Cleveland; Jeffrey L. Fiedler; Hon. Patrick A. Mulloy; Hon. William A. Reinsch; Hon. Dennis C. Shea; Peter Videnieks (Hearing Co-Chair); Michael R. Wessel; Larry M. Wortzel.

Congressional Perspectives: Honorable Roscoe Bartlett, U.S. Representative from the state of Maryland.

Witnesses: Bruce Lemkin, U.S. Department of the Air Force; Mary Saunders, U.S. Department of Commerce; Roger Cliff, The RAND Corporation; Mark A. Stokes, Project 2049 Institute; Wayne Ulman, National Air and Space Intelligence Center; Peder Andersen, International Trade Commission; Tai Ming Cheung, University of California—San Diego; Richard D. Fisher, Jr., International Assessment and Strategy Center; Owen E. Herrnstadt, International Association of Machinists and Aerospace Workers; Daniel Elwell, Aerospace Industries Association of America; Rebecca Grant, General William Mitchell Institute for Airpower Studies; Jeff Hagen, The RAND Corporation.

**June 9, 2010: Public Hearing on “Evaluating China’s Past and Future Role in the World Trade Organization”
Washington, DC**

Commissioners present: Daniel M. Slane, Chairman (Hearing Co-Chair); Peter T.R. Brookes; Robin Cleveland; Jeffrey L. Fiedler; Hon. Patrick A. Mulloy (Hearing Co-Chair); Hon. William A. Reinsch; Hon. Dennis C. Shea; Peter Videnieks; Michael R. Wessel.

Congressional Perspectives: Hon. Debbie Stabenow, U.S. Senator from the state of Michigan; Hon. Sherrod Brown, U.S. Senator from the state of Ohio; Hon. Charles Schumer, U.S. Senator from the state of New York; Hon. Lindsey Graham, U.S. Senator from the state of South Carolina.

Witnesses: Alan Wm. Wolff, Dewey & LeBoeuf LLP; Thea Mei Lee, AFL–CIO; Robert E. Lighthizer, attorney; James Bacchus, Greenberg Traurig LLP; Clyde Prestowitz, Economic Strategy Institute; Oded Shenkar, The Ohio State University; Terence P. Stewart, Stewart and Stewart; Gilbert B. Kaplan, Committee to Support U.S. Trade Laws; Calman J. Cohen, Emergency Committee for American Trade.

**June 30, 2010: Public Hearing on “China’s Information Control Practices and the Implications for the United States”
Washington, DC**

Commissioners present: Daniel M. Slane, Chairman; Carolyn Bartholomew, Vice Chairman; Daniel Blumenthal; Peter T.R. Brookes; Robin Cleveland (Hearing Co-Chair); Jeffrey L. Fiedler (Hearing Co-Chair); Hon. Patrick A. Mulloy; Hon. William A. Reinsch; Hon. Dennis C. Shea; Peter Videnieks; Michael R. Wessel; Larry M. Wortzel.

Congressional Perspectives: Hon. Chris Smith, U.S. Representative from the state of New Jersey.

Witnesses: Paul Dudek, Securities and Exchange Commission; Peter Friedman, attorney; James V. Feinerman, Georgetown University Law Center; Gordon G. Chang, author and Forbes.com columnist; Mitchell A. Silk, Allen & Overy LLP; Rebecca MacKinnon, New America Foundation; Rebecca Fannin, author, *Silicon Dragon*, and columnist, Forbes.

**July 14, 2010: Public Hearing on “The Challenge of China’s
Green Technology Policy and Ohio’s Response”
Toledo, Ohio**

Commissioners present: Daniel M. Slane, Chairman; Carolyn Bartholomew, Vice Chairman (Hearing Co-Chair); Daniel Blumenthal; Peter T.R. Brookes (Hearing Co-Chair); Hon. Patrick A. Mulloy; Hon. Dennis C. Shea; Michael R. Wessel.

Witnesses: Ethan Zindler, Bloomberg New Energy Finance; Julian L. Wong, Center for American Progress Action Fund; Devon Swezey, The Breakthrough Institute; Megan Reichert-Kral, The University of Toledo; David McCall, United Steelworkers Union; Ty Haines, WIRE-Net; Kathleen Weiss, First Solar; Greg Noethlich, Elyria Foundry; J. Ross Bushman, Cast-Fab Technologies; Patrick Valente, Ohio Fuel Cell Coalition; William McMillen, The Ohio State University.

APPENDIX IIIA
LIST OF WITNESSES TESTIFYING BEFORE
THE COMMISSION
2010 Hearings

Full transcripts and written testimonies are available online at the Commission's Web Site: www.uscc.gov .
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Alphabetical Listing of Panelists Testifying before USCC

Panelist Name	Panelist Affiliation	USCC Hearing
Andersen, Peder	International Trade Commission	May 20, 2010
Bacchus, James	Greenberg Traurig LLP	June 9, 2010
Bartlett, Roscoe	U.S. Representative from the state of Maryland	May 20, 2010
Bordallo, Madeleine Z.	U.S. Representative from the territory of Guam	February 4, 2010
Bower, Ernest Z.	Center for Strategic and International Studies	February 4, 2010
Bracy, Dennis	U.S.-China Clean Energy Forum	April 8, 2010
Bradley, Rob	World Resources Institute	April 8, 2010
Brown, Sherrod	U.S. Senator from the state of Ohio	June 9, 2010
Brown, Sherrod	U.S. Senator from the state of Ohio	March 18, 2010
Bush III, Richard C.	The Brookings Institution	March 18, 2010
Bushman, J. Ross	Cast-Fab Technologies	July 14, 2010
Chang, Gordon G.	Author and Forbes.com columnist	June 30, 2010
Cheung, Tai Ming	University of California, San Diego	May 20, 2010
Cliff, Roger	The RAND Corporation	May 20, 2010
Cohen, Calman J.	Emergency Committee for American Trade	June 9, 2010

**Alphabetical Listing of Panelists Testifying before USCC—
Continued**

Panelist Name	Panelist Affiliation	USCC Hearing
Cooke, Merritt T.	GC3 Strategy, Inc.	March 18, 2010
Cronin, Richard P.	Henry Stimson Center	February 4, 2010
Dalpino, Catharin	Georgetown University	February 4, 2010
Depass, Michelle J.	Environmental Protection Agency	April 8, 2010
Diaz-Balart, Lincoln	U.S. Representative from the state of Florida	March 18, 2010
Drezner, Daniel W.	Tufts University	February 25, 2010
Dudek, Paul	Securities and Exchange Commission	June 30, 2010
Economy, Elizabeth C.	Council on Foreign Relations	April 8, 2010
Elwell, Daniel	Aerospace Industries Association	May 20, 2010
Faleomavaega, Eni	U.S. Representative from the territory of American Samoa	February 4, 2010
Fannin, Rebecca	Author, <i>Silicon Dragon</i> , and columnist, <i>Forbes</i>	June 30, 2010
Feinerman, James V.	Georgetown University Law Center	June 30, 2010
Fisher, Jr., Richard D.	International Assessment and Strategy Center	May 20, 2010
Forbes, J. Randy	U.S. Representative from the state of Virginia	February 4, 2010
Friedman, Peter	Attorney	June 30, 2010
Frost, Ellen L.	INSS National Defense University	February 4, 2010
Gingrey, Phil	U.S. Representative from the state of Georgia	March 18, 2010
Graham, Lindsey	U.S. Senator from the state of South Carolina	June 9, 2010
Grant, Rebecca	General William Mitchell Institute for Airpower Studies	May 20, 2010
Hagen, Jeff	The RAND Corporation	May 20, 2010
Haines, Ty	WIRE-Net	July 14, 2010
Hammer, Stephen A.	Energy Smart Cities Initiative	April 8, 2010
Hammond-Chambers, Rupert	U.S.-Taiwan Business Council	March 18, 2010

**Alphabetical Listing of Panelists Testifying before USCC—
Continued**

Panelist Name	Panelist Affiliation	USCC Hearing
Herrnstadt, Owen E.	International Association of Machinists and Aerospace Workers	May 20, 2010
Hindery, Jr., Leo	InterMedia Partners VII	February 25, 2010
Howell, Thomas R.	Dewey & LeBoeuf LLP	April 8, 2010
Hsu, Angel	Yale University	April 8, 2010
Johnson, Simon	Massachusetts Institute of Technology	February 25, 2010
Kaplan, Gilbert B.	Committee to Support U.S. Trade Laws	June 9, 2010
Kastner, Scott L.	University of Maryland	March 18, 2010
Lee, Thea Mei	AFL-CIO	June 9, 2010
Lemkin, Bruce	U.S. Air Force	May 20, 2010
Lighthizer, Robert E.	Attorney	June 9, 2010
Lohman, Walter	The Heritage Foundation	February 4, 2010
MacKinnon, Rebecca	New America Foundation	June 30, 2010
McCall, David	United Steelworkers Union	July 14, 2010
McMillen, William	The University of Toledo	July 14, 2010
Noethlich, Greg	Elyria Foundry	July 14, 2010
Percival, Bronson	CNA	February 4, 2010
Prasad, Eswar S.	Cornell University	February 25, 2010
Prestowitz, Jr., Clyde V.	Economic Strategy Institute	June 9, 2010
Prestowitz, Jr., Clyde V.	Economic Strategy Institute	February 25, 2010
Reichert-Kral, Megan	The University of Toledo	July 14, 2010
Rigger, Shelley	Davidson College	March 18, 2010
Rohrabacher, Dana	U.S. Representative from the state of California	February 4, 2010
Sandalow, David	U.S. Department of Energy	April 8, 2010
Saunders, Mary	U.S. Department of Commerce	May 20, 2010
Scher, Robert	U.S. Department of Defense	February 4, 2010
Schiffer, R. Michael	U.S. Department of Defense	March 18, 2010
Schriver, Randall G.	Project 2049 Institute	March 18, 2010
Schumer, Charles	U.S. Senator from the state of New York	June 9, 2010

**Alphabetical Listing of Panelists Testifying before USCC—
Continued**

Panelist Name	Panelist Affiliation	USCC Hearing
Scissors, Derek	The Heritage Foundation	February 25, 2010
Scobell, Andrew	Texas A&M University	February 4, 2010
Shear, David B.	U.S. Department of State	March 18, 2010
Shear, David B.	U.S. Department of State	February 4, 2010
Shenkar, Oded	The Ohio State University	June 9, 2010
Shlapak, David	The RAND Corporation	March 18, 2010
Silk, Mitchell A.	Allen & Overy LLP	June 30, 2010
Smith, Chris	U.S. Representative from the state of New Jersey	June 30, 2010
Stabenow, Debbie	U.S. Senator from the state of Michigan	June 9, 2010
Stewart, Terence P.	Stewart and Stewart	June 9, 2010
Stokes, Mark A.	Project 2049 Institute	March 18, 2010
Stokes, Mark A.	Project 2049 Institute	May 20, 2010
Sumner, Jr., L. Cartan	Peabody Energy	April 8, 2010
Swezey, Devon	The Breakthrough Institute	July 14, 2010
Tramosch, Albert	American Intellectual Property Law Association	April 8, 2010
Turner, Jennifer L.	Woodrow Wilson Center	April 8, 2010
Ulman, Wayne	U.S. National Air and Space Intelligence Center	May 20, 2010
Valente, Patrick	Ohio Fuel Cell Coalition	July 14, 2010
Weiss, Kathleen	First Solar	July 14, 2010
Willner, Albert S.	CNA	March 18, 2010
Wolf, Frank	U.S. Representative from the state of Virginia	February 25, 2010
Wolff, Alan William	Dewey & LeBoeuf LLP	June 9, 2010
Wong, Julian L.	Center for American Progress Action Fund	July 14, 2010
Zindler, Ethan	Bloomberg New Energy Finance	July 14, 2010

**APPENDIX IV
INTERLOCUTORS' ORGANIZATIONS**

**Asia Fact Finding Trips
July–August 2010 and December 2009**

CHINA AND HONG KONG, JULY–AUGUST 2010

During the visit of a U.S.-China Commission delegation to China and Hong Kong in July and August 2010, the delegation met with representatives of the following organizations:

In Beijing

U.S. Government

- U.S. Embassy, Beijing

Government of the People's Republic of China

- Ministry of Foreign Affairs
- Ministry of Science and Technology
- Chinese People's Institute of Foreign Affairs
- National Defense University of the People's Liberation Army
- China Institutes of Contemporary International Relations
- China Institute for International Strategic Studies
- China Center for International Economic Exchanges

Business Interests

- ENN Solar (Tianjin)
- Lishen Battery/CODA Automotive (Tianjin)
- Yingli Green Energy (Baoding)
- Huiteng Windpower Equipment Company (Baoding)
- GE Renewable Energy

In Hong Kong

U.S. Government

- U.S. Consulate, Hong Kong

Government of the Hong Kong Special Administrative Region

- Hong Kong Special Administrative Region Executive Council
- Hong Kong Environmental Bureau
- Bureau of Commerce and Economic Development
- One Country Two Systems Research Institute

Business Interests

- Hang Lung Properties

Political Interests

- Democratic Party
- Civic Party

Local Activists

- Civic Exchange
- Greenpeace
- Friends of the Earth
- Independent Chinese PEN Center
- Hong Kong Journalists Association

Educational Interests

- Chinese University of Hong Kong
- Hong Kong University of Science and Technology

TAIWAN AND VIETNAM, DECEMBER 2009

During the visit of a U.S.-China Commission delegation to Taiwan and Vietnam in December 2009, the delegation met with representatives of the following organizations:

In Taipei**U.S. Government**

- American Institute in Taiwan

Government of Taiwan

- President Ma Ying-jeou
- Ministry of Foreign Affairs
- National Security Council
- Ministry of Economic Affairs
- Ministry of National Defense
- Chung-Shan Institute of Science and Technology

Private Enterprise

- American Chamber of Commerce
- Taiwan Semiconductor Manufacturing Company

Political Organization

- Democratic People's Party

In Vietnam**U.S. Government**

- U.S. Embassy, Hanoi

Socialist Republic of Vietnam

- National Assembly
- Ministry of Industry and Trade
- Ministry of Foreign Affairs
- Ministry of National Defense

Research Organizations

- Vietnam Academy of Social Sciences
- Diplomatic Academy of Vietnam

Political Organization

- Communist Party of Vietnam External Relations Commission

APPENDIX V
LIST OF RESEARCH MATERIAL
Funded Research Projects, 2010

The research projects listed below were funded in fiscal year 2010. Upon acceptance by the Commission, the research reports will be posted to the Commission's Web site *www.uscc.gov*.

- Economic Strategy Institute, *Report Examining China's Role in International Organizations*
- CENTRA Technologies, *Report Examining China's National-Level Science Programs*
- RAND Corporation, *Report Examining Developments in China's Aerospace Industry*

Funded Research Projects, 2009

The 2009 funded research reports noted below are available online at the Commission's Web site *www.uscc.gov*.

All of the commissioned research projects listed below were prepared at the request of the Commission to support its deliberations and are intended to promote greater public understanding of the issues addressed by the Commission. Inclusion in the Report does not imply an endorsement by the Commission or any individual Commissioner of views expressed in the material.

- Defense Group, Inc., *Report Examining Reforms in the Chinese Defense Industry*
- Economist Intelligence Unit, *Report Examining Issues Surrounding a Potential Bilateral Investment Treaty Between the United States and the People's Republic of China*
- Northrop Grumman, *Report Examining Chinese Cyber Warfare and Espionage*
- NSD Biogroup, LLC, *Report Examining Potential Health & Safety Impacts of the Use of Chinese-Produced Raw Ingredients in the Manufacture of U.S. Pharmaceutical Products*

APPENDIX VI

ABBREVIATIONS AND ACRONYMS

AFL–CIO	American Federation of Labor–Congress of Industrial Organizations
APEC	Asia-Pacific Economic Cooperation organization
ATP	advanced technology products
ASEAN	Association of Southeast Asian Nations
CCP	Chinese Communist Party
CEO	chief executive officer
CNOOC	China National Offshore Oil Corporation
CNPC	China National Petroleum Corporation
CPC	Communist Party of China
CVD	countervailing duty
DoD	Department of Defense
EU	European Union
G–20	Group of 20 nations
GATT	General Agreement on Tariffs and Trade
GDP	gross domestic product
ICANN	Internet Corporation of Assigned Names and Numbers
IMF	International Monetary Fund
Km	kilometer
NATO	North Atlantic Treaty Organization
NGO	nongovernmental organization
OECD	Organization for Economic Cooperation and Development
PLA	People’s Liberation Army
PNTR	Permanent Normal Trade Relations
PRC	People’s Republic of China
RMB	renminbi
S&ED	Strategic and Economic Dialogue
Sinopec	China Petroleum and Chemical Corporation
UN	United Nations
USDA	U.S. Department of Agriculture
USTR	U.S. Trade Representative
VAT	value added tax
WTO	World Trade Organization

2010 COMMISSION STAFF

MICHAEL R. DANIS, *Executive Director*

KATHLEEN J. MICHELS, *Associate Director*

DANIEL M. HARTNETT, *Senior Policy Analyst Military and Security Issues*

PAUL C. MAGNUSSON, *Senior Policy Analyst Economics and Trade Issues*

JOHN D. DOTSON, *Research Coordinator*

JONATHAN G. WESTON, *Congressional and Public Affairs Coordinator*

J. NICHOLAS BARONE, *(former) Administrative Program Specialist*

CAITLIN E. CAMPBELL, *Congressional and Public Affairs Assistant*

M.L. FAUNCE, *Administrative and Program Specialist*

CHRISTOPHER A. FAVA, *Procurement and Travel Specialist*

DOUGLAS G. FEHRER, *Human Resources Coordinator*

CHRISTOPHER P. FIORAVANTE, *Travel and Procurement Assistant*

KATHERINE E. KOLESKI, *Research Assistant*

LEE LEVKOWITZ, *Policy Analyst for Foreign Affairs and Energy Issues*

TIMOTHY L. LIPKA, *Administrative and Program Assistant*

ATHANASIOS P. MIHALAKAS, *(former) Policy Analyst for Economics and Trade Issues*

DANIEL W. NEUMANN, *Policy Analyst for Economics and Trade Issues*

NARGIZA SALIDJANOVA, *Policy Analyst for Economics and Trade Issues*

ROBERT G. SHELDON, *Policy Analyst for Military and Security Issues*

J.R. WARNER, *(former) Research Assistant*

KATHLEEN WILSON, *Budget and Accounting Specialist*

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