Testimony before the Congressional-Executive Commission on China
Hearing on
"Will China Protect Intellectual Property?
New Developments in Counterfeiting, Piracy, and Forced Technology Transfer"
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Mr. Chairman, Members of the Commission,

It is a pleasure to be here with you today; thank you for inviting my participation. My comments will deal mainly with China's evolving technology and industrial policies, and the role of intellectual property in them. Let me make the following points and then attempt to answer any questions you may have.

1. Concerns about intellectual property rights in China are usefully seen against the background of growing international attention to intellectual property. On one hand, countries and companies around the world are coming to see intellectual property as a key component of competitiveness; a number of national governments, including China, have introduced national IP strategies. At the same time, there is also considerable international dissatisfaction with the norms and procedures by which international IP regimes operate.[1] Growing interest in clean energy technologies in the face of worries over climate change reinforce

[1] One useful review of the variety of views currently found in the international discourse on IP can be found in *Scenarios for the Future,* a 2008 report of the European Patent Office.

the increasing importance of IP but also highlight some of the areas of international dissensus.[2]

2. We should recognize that there have been many changes in Chinese thinking about intellectual-property over the past two decades, including a variety of legal and institutional steps (eg., new courts) taken to protect intellectual property. The growing number of Chinese innovators have acquired an interest in protecting IPR, and there is official recognition that China's aspirations for indigenous innovation are unlikely to be met without a far more credible intellectual property protection regime. At the same time, the production of intellectual property has also acquired a central role in Chinese thinking about their technological future and in the aggressive national technology and industrial policies now in course to realize that future. For the international community engaged with China, these changes are both encouraging and troubling. The encouragement comes from the sense that Chinese companies and the Chinese state see it in their interest to promote a more robust intellectual property protection system. The concerns come from the fact that the implementation of China's industrial policy sometimes puts the intellectual property rights of foreigners at risk.

3. In 2006, China introduced its "Medium to Long-Term Plan For Scientific and Technological Development" (MLP). The plan is a very ambitious effort to make China an "innovative society" by 2020 by encouraging the development of "indigenous innovation." The MLP puts a premium on the production of intellectual property; it expects that by the end of the plan period, the number citations to papers produced by Chinese scientists will have entered the world's top 10 countries. It also hopes to become part of the top 15 countries in terms of patents granted.

[2] Bernice Lee, Ilian Iliev, and Felix Preston. *Who Owns Our Low Carbon Future? Intellectual Property in Energy Technologies*. London, Chatham House.

The term, “indigenous innovation” is a rather imperfect rendering of the Chinese “*zizhu chuangxin,”* a term which defies easy translation and, as a result, has given rise to some confusion among English speakers. While “indigenous” captures part of the meaning, so might “independent,” “homegrown,” “self-initiated,” “original” and several other terms. In the face of confusion among foreigners and, indeed, among Chinese themselves, the Chinese Ministry of Science and Technology has suggested that *zizhu chuangxin* be understood as encompassing 1. genuinely “original innovation” (*yuanshi chuangxin),* 2. “integrated innovation” (*jicheng chuangxin*, or the fusing of existing technologies in new ways), and 3. “re-innovation” (*yinjin xiaohua xishou zaichuangxin),* which involves the assimilation and improvement of imported technologies. In desperation, some officials of the Ministry have suggested that *zizhu chuangxin* be translated simply as “innovation.”

Confusion over translation, however, should not mask the deeper policy and cultural significance of the term. It grows out of China’s fear of dependency on foreign technology, and what that means for the development of national security capabilities and the relative gains that China’s manufacturers might realize in the global economy. In addition, the concern for “*zizhu chuangxin*” has roots in a deep cultural concern that as a great civilization, China should again become a leader in science and technology, as it once was. With these considerations in mind, the term might better be translated as “sovereign innovation.”

The ambiguity surrounding the meaning of *“zizhu chuangxin”* has meant that it has been available as a symbol for the policy entrepreneurship of various groups in China’s technical community (membership in which is drawn from industrial, academic, and government circles). For some, it has justified the pursuit of techno-nationalist objectives intended to build up a China-focused national innovation system. For others, it supports a more techno-globalist vision

in which growing Chinese capabilities in research and development are married with global technology flows and globalized R&D to produce and innovation system that is not bounded by narrow economic nationalism. The challenge for the international community is to identify and strengthen the hands of those with the latter orientation.

The pursuit of "*zizhu chuangxin"* and the making of an "innovative society" in China by the year 2020 involves a significant expansion of R&D spending. But China has long suffered from a serious gap between R&D activities and an inability to realize commercial and other gains from turning new knowledge into practical innovations. China is attempting to overcome this gap by incentivizing Chinese industrial enterprises to take the challenges of innovation seriously. Therefore a major thrust of the MLP is to transform Chinese enterprises into centers of innovation and leaders of the national innovation system. A variety of "implementing policies" in support of the MLP are intended to privilege Chinese enterprises and support the development of Chinese intellectual property and Chinese technical standards. These policies in support of "indigenous innovation" have tended to push China in the techno-nationalist direction, in the view of many foreign observers, and have elicited widespread international concern.

The MLP contains targets for the development of products containing Chinese intellectual property as well as technical standards based on Chinese IP. As these targets have been operationalized, they have resulted in an incentive structure for Chinese companies, universities, and research institutes that rewards the filing of patents as a measure of success. It is not surprising, therefore, that there has been a steady growth in patenting over the past five years - although the quality of many of these patents has been questioned.

The elements of this incentive structure include, in the first instance, the use of IP production (measured in terms of papers and patents) for

evaluating R&D projects and for awarding new R&D grants. But, in addition, IP criteria have been built into government procurement policies, and policies for technical standards. Thus, in ways that are rather unusual by international norms, China has proposed that products qualifying for government procurement should contain Chinese intellectual property. Apart from the ambiguity of what this policy might mean (what *is* "Chinese intellectual property"?; how is it determined?), foreign companies have been concerned that they will be excluded from an increasingly lucrative Chinese government procurement market, depending on how the policy is implemented. Although the central government appears to be backing away from the more draconian interpretations, local governments have substantial discretion in interpreting it and have been slower in adjusting policy implementation in ways that are more consistent with international norms.

While the promotion of the development of Chinese IP as part of the MLP illustrates the growing importance of strong intellectual property rights protection in Chinese thinking, new policy proposals in the area technical standards illustrate the persistence of sympathies for weaker IP. In this case, China has in recent years been troubled by what it considers to be excessive royalty fees charged for the use of certain technical standards. As a result, it has shown considerable interest in trying to forge new directions for the "patents in standards" problem, such that the IP provisions of the Chinese standardization system would reflect what Chinese officials believe to be a "fairer" formula for royalty payments.

4. There is no simple way to respond to China's "indigenous innovation" initiatives, especially when they are understood in terms of "sovereign innovation." Nevertheless, responses along several tracks are appropriate. First, China should be pushed to honor its commitment to join the Government Procurement Agreement sooner rather than later. Second, the US should build on its extensive science and technology

contacts with China via commercial, academic, and government channels to promote a vision of innovation that transcends a limited and narrow techno-nationalism. A case can be made that some of China's policies in support of "indigenous innovation" actually work against the achievement of the "innovative society" goal, and this case should be made frequently and forcefully in contacts with Chinese policymakers and members of the technical community.

Policies with regard to procurement and standards have led to the bureaucratization of IP issues, and the complexities of central government-local government relations in the implementation of policies have made things worse. As in other areas of Chinese public policy, policymaking and policy implementation are not as coherent as a "China Inc." image might lead us to believe. It is unfortunate that the areas of incoherence can, and often do, impose costs on China's foreign commercial partners. A positive interpretation of these problems is that China is in a phase of development that makes incoherence inescapable, but is trending in the direction of greater coherence and, hence, a future with fewer conflicts over IP matters. A more troubling interpretation, though, is that China is on a trajectory which will be characterized both by greater policy coherence and policy development in the areas of IP and standards which will be more difficult to harmonize with international norms.

What is less subject to interpretation, though, is that China is seriously and understandably committed to its own scientific and technological development and innovative capacity, and there is little that the international community can do to change this. Instead, members of the international community have to devise ways of exploiting that development by encouraging its further internationalization, monitoring its progress, and preparing for strategic interventions to take advantage of the new opportunities it will offer.

5. In joining WTO, China has pledged that technology transfer requirements would not be a condition for foreign investment. That we continue to hear complaints about coerced transfers indicates that China is either ignoring its WTO commitments or has found new policy tools to induce transfers.

In many industries, though, including clean energy, the Chinese market is so attractive to international companies that the wresting of some degree of technology transfer from investments is unavoidable. In raising this point, we are reminded that technology transfer, more often than not, is a business decision. We should also be reminded that, except in rare cases, the business value of intellectual property depends not solely on the quality of the intellectual contribution embodied in the IP, but also on the "complementary assets" which make it possible to exploit the value of the intellectual property.

In the area of clean energy technologies, we are increasingly seeing that China is providing those complementary assets at a rate, and on a scale, that makes it a magnet for owners of IP to conduct business there. There have been a number of recent reports to this effect; I would call your attention to a most recent one issued by Agence France Presse, entitled "China a Beacon for Foreign Clean Tech Firms."[3] According to this account, China has surpassed United States this year as the most attractive market for investments in renewable energy technologies, in large part because it has become *"...a very good market to commercialize technology at scale...."* Furthermore, China is providing the financial resources to facilitate the transformation of important technical ideas into commercial products. Quoting Nicholas Parker of the US-based Cleantech Group, *"Things are tough for companies here (in the West).... we have a shortage of debt financing. The money for deployment, for building wind farms or for building a factory where you tend to use debt financing, has dried up due to the crisis on Wall Street.*

[3] http://www.abs-cbnnews.com/business/09/19/10/china-beacon-foreign-clean-tech-firms

That shortage doesn't exist in China." Add to China's advantages the fact that it is creating an increasingly competent R&D system with a growing number of capable scientists and engineers. In short, China offers markets, financing, R&D capabilities, and a supportive policy environment for clean energy; it is not surprising that owners of intellectual property will risk IPR infringements by taking their business there.

6. The points made above are intended to suggest that US thinking about intellectual property rights in China needs a fairly major overhaul. That there are IPR abuses in China is beyond doubt; they affect Chinese innovators as well as foreigners, and should be opposed. But it is also clear that the value of intellectual property is not solely intrinsic to the ideas themselves, but requires an environment rich in complementary assets for that value to be released. It is becoming increasingly clear that in the area of clean energy, policy failures resulting from what appears to be a broken political system in United States are leading to the squandering of the complementary assets we once had in abundance.

The globalization of innovation puts a premium on both the ability to produce intellectual property, but also to exploit it. The global innovation system is usefully thought of as a complex network of interconnected nodes. The United States has been a "supernode" in this network for the last 60 years as the center of IP creation and IP exploitation *and*, importantly, a magnet for innovators from around the world. Many signs indicate that China is becoming a new "supernode" in spite of the difficulties of its IPR regime. While it is important for the US to continue to work with China in moving that regime towards international norms, there clearly is a need for new thinking about intellectual property in China, and for a far more imaginative approach to engaging China on these issues.