

# **First Joint Workshop on Intellectual Property in the US-China Clean Energy Research Center (CERC)**

**March 5-6, 2012  
Haikou, China  
Workshop Summary**

Prepared for the US-China Clean Energy Forum  
by Joanna Lewis<sup>1</sup>  
June 2, 2012

On March 5-6, 2012 in Haikou China, the US Department of Energy (DOE) and China Ministry of Science and Technology (MOST) brought together members of the US-China Clean Energy Research Center (CERC) research teams and intellectual property (IP) experts from the United States and China to discuss IP issues related to the work of the CERC. The goals for the workshop were to: (a) learn more about the CERC and its IP provisions; (b) explore how the United States and China can work together to strengthen IP protection and manage IP in joint research; and (c) establish a record of the proceedings for informing further implementation of CERC and its projects. The purpose of CERC is to accelerate the development of advanced clean energy technologies and realize the benefits of these technologies for both countries.<sup>2</sup>

The workshop was introduced by the CERC directors from China and the United States, namely, Liu Zhiming of MOST and Robert Marlay of US DOE. Dr. Marlay emphasized that, while the CERC is a research agreement and not an IP agreement, it is important to have IP agreements within the CERC because uncertainty in how IP will be handled could restrict the quality of the research being conducted under the CERC. It is likely, for example, that if partners were fearful that IP will not be sufficiently protected, they would not bring their best ideas to the table. This would undermine the advantages of the CERC. Therefore, the Technology Management Plans and their sub-agreements not only serve to protect the competitive interests of partners, but enable CERC researchers to bring forward safely their best ideas and most innovative thinking.

## **Summary of Key Workshop Findings**

- **There are significant differences between the US and Chinese patent systems.** US and Chinese inventors would benefit from understanding these differences. US inventors should consider how best to utilize the Chinese patent system as part of their patenting strategy in China, and vice versa. Due to the differences in the US system, there are additional problems related to transferring patents from the United States to China which can be prevented in many cases by involving a Chinese patent attorney in drafting the initial US patent application. Key differences between the US and Chinese systems include the existence of

---

<sup>1</sup> Joanna Lewis is assistant professor of Science, Technology and International Affairs at Georgetown University's Walsh School of Foreign Service, Washington, DC, and observer of the workshop.

<sup>2</sup> For more about the U.S.-China Clean Energy Research Center, see: <http://www.us-china-cerc.org>.

the “utility model” patent in China, and the way in which the US and Chinese systems each provide in law for compulsory licenses.<sup>3</sup>

- **There are specific IP considerations related to conducting R&D, whether for the government, or under commercial contracts.** In the United States, research conducted under a government contract will be subject to specific terms set by the federal government, while commercial contracts or subcontracts may be very different than the IP rights that parties to the government or “primary” contract have. China, similarly has provisions addressing government funded research, which could also include government rights with regard to state owned assets.
- **Background IP can be a very important issue in collaborative R&D efforts.** If there is not a clear mutual understanding by all performers at the outset of what is Background IP and what is not, and the Background IP is not protected properly by all performers in the research, relationships among parties can be seriously damaged and the research effort diminished or broken off entirely.
- **In a research consortium, it is important to have well-defined membership procedures.** This includes procedures for determining who is in the research consortium at any given time, and the procedure for leaving the consortium must be clearly spelled out in the contract so as to clarify who has ownership rights to the inventions of the consortium and who has the ability to license. A lack of clarity in determining all of these issues up front can lead to lots of difficulties after the fact, particularly with regard to allocating rights in inventions.
- **In the global R&D environment it is often difficult to determine where an invention was made or completed.** Inventors and collaborators tend to travel between countries and research sites, and they do not necessarily confine their inventing activities to a single geographical location. This has implications for where a patent should be filed and the jurisdiction of national patent law.
- **Both the United States and China have provisions in their patent laws relating to national security.** In the US, when publication or disclosure by publication of an application or by grant of a patent in which the US government has a property interest might be detrimental to national security, the Commissioner of Patents upon notice from the interest agency must order the invention be kept secret and withhold publication or grant.

---

<sup>3</sup> There are three types of patents available in China: *Invention patents* protect inventions which provide any new technical solution relating to a product, a process or improvement. They provide 20-year protection from date of filing and are subject to substantive examination. *Utility model patents* protect any new technical solution relating to the shape, the structure, or their combination, of a product that is fit for practical use. They provide 10-year protection from date of filing and are not subject to substantive examination. Processes or methods cannot be protected by utility model patents. *Design patents* protect any new design of the shape, pattern or combination thereof, or the combination of color with shape or pattern, of a product, which creates an aesthetic feeling and is fit for industrial application. They provide 10-year protection from date of filing. Utility model patents have real teeth in China; they are relatively easy to get, but hard to be invalidated. In a high profile case, a Chinese company, the Chint Group, was awarded approximately US\$45 million in damages for infringement of its utility model patent protecting a low voltage circuit breaker by the French Schneider Electric company. Chint later settled for a lower amount of approximately US\$23 million.

- **Innovation policy is driving change in China’s IP environment.** High-level government plans are now reinforcing the need for the strengthening of IP protection and making the linkages between IP protection and economic growth. Ultimately, the direction of China’s indigenous innovation policy may depend on how well and how rapidly Chinese enterprises integrate with the international innovation and business community, which would be positive both for the innovative ability of Chinese firms and for foreign firms operating in China.
- **For an agreement to be enforceable in China, mandatory provisions of Chinese laws must be complied with.** Many non-Chinese parties to agreements with Chinese companies choose non-Chinese law to govern their agreement, which can lead to problems if enforcement will ultimately be sought in China. There is no international treaty that requires the United States or China to recognize court judgments that occur overseas.
- **Issues frequently arise surrounding the ownership of improvements made to licensed technology.** If a foreign firm licenses a technology to a Chinese firm, but then the Chinese firm makes improvements upon that technology, even if a contract said that the foreign firm reserved ownership rights to those improvements, Chinese law says that improvements cannot be owned by the foreign firm unless there is compensation to the Chinese firm.
- **There are differences in the definition of “exclusive license” in US and Chinese law which can lead to confusion.** While western licenses only make a distinction between exclusive and nonexclusive without further specifying the nature of an exclusive license, in Chinese, there are multiple terms, which translate as sole-exclusive, semi-exclusive, and ordinary. Exclusive is frequently translated into Chinese as semi-exclusive, which allows the licensor to practice. If agreements have both Chinese and English versions, both have equal force, which may breed ambiguities and lead to litigation.
- **Patent portfolios are an innovative approach to risk management.** They may help to ensure that technology innovations, particularly those owned by small companies, are not killed by patent litigation.
- **The CERC’s Technology Management Plans (TMPs) have established a more flexible international IP regime than previous S&T agreements.** They serve as a framework and provide guidance to the CERC, while leaving room for additional details to be negotiated as needed by the CERC participants.
- **In undertaking negotiations under the TMP, both sides should clearly identify what each party brings to the table.** This should be done at the outset, by documenting background IP and other contributions such as capital, location, fast manufacturing abilities, or even the best minds, which can then form the basis for a legal agreement.
- **In negotiating an agreement, both sides should strive for a fair balance of IP rights, as well as of economic benefits and risks.** If one side is perceived as winning too much, the deal is likely to eventually fall apart. Agreements should aim to drive positive behavior and cooperation over the long term, so hopefully litigation can be avoided.

## **Summary of Presentations**

Summaries of the presentations made by the participants from the US delegation are described below. For further details the original presentations are available on the [Chinese CERC website](#) and the [US CERC website](#) for review.

### **1. Introduction to US Intellectual Property Law**

Nancy Kremers, the Senior IP Attaché from the US Patent and Trademark Office (USPTO) based at the US Embassy in Beijing, presented an introduction to the US intellectual property system. Ms. Kremers has worked for many years on IP issues in the context of collaborative research, including at The Defense Advanced Research Projects Agency (DARPA), and has much relevant experience to bring to the CERC.

#### **Overview of US IP Law**

Ms. Kremers began with an overview of US patent law, explaining that the basis for US IP law is in the US Constitution (Article 1, Section 1, Clause 8), which states “Congress shall have power... To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.” In the US, intellectual property rights are *private* property rights. A patent protects an invention, design or plant. The term of protection for a patent is non-renewable, and lasts for 20 years from application date (for utility [“invention”-type] and plant patents) or 14 years from grant (for design patents). All US patents are issued by the USPTO, and all types of patent applications are substantively examined prior to grant.

Unlike in China, the US system has no “utility model” patents. While US “invention” patents are sometimes collectively called “utility” patents, these are still different from the utility model patent in China, so the terminology can be confusing. Ms. Kremers noted that while most US inventors are not familiar with the Chinese patent system, they would benefit from increased knowledge about the Chinese patent system and particularly its utility model patent system, as there may be many situations where it would be appropriate for US inventors to apply for such patents as part of their patenting strategy in China. In many cases, a national invention patent application and a utility model patent application can be filed on the same day in China at minimal increased cost, and the election of which type to retain can be made later on. Because the utility model application is not substantively examined, grant typically occurs much sooner than for the invention patent, affording certain advantages in protection to the holder until the point at which election must be made. As a result, CERC participants should become familiar with how to use this tool in the Chinese patent system effectively, even though it is not available in the United States.

Ms. Kremers reviewed the statutory categories of invention in the US system (see Kremers slide 6). She noted that there is a large body of case law in the US on the issues of patent eligibility, including some very recent cases. While the eligibility criteria of an invention for patenting (see Kremers slide 7) are quite similar in many respects to those in China and many other countries, the US differs from many countries in the broad subject matter that may be eligible for patenting, including, under appropriate conditions, computer software. The US Supreme Court said in

Diamond v. Chakrabarty that “anything under the sun” is eligible for patenting in the US, so long as the statutory criteria are met.<sup>4</sup> (See Kremers slide 8 for exceptions.).

After reviewing the basics of US trademark law (see Kremers slides 9-10), she explained the key differences between trademark protection in the US and Chinese systems. Most notably, the United States has a “use-based” system, which means that an applicant cannot obtain a trademark registration unless he can demonstrate in the application that he has used the mark in commerce, or has a bona fide intention to do so, and can provide evidence of actual use in commerce in a timely manner (within three years from filing). In large part because of this use requirement, the United States does not suffer from the bad faith trademark filing or “trademark squatting” problem found in many other countries, including China. US companies that intend to do business overseas, however, need to be aware that in China and many other countries, there is a “first to file” system, where no use or intent to use a trademark is required prior to obtaining legal rights to that mark. As a result, companies would be well advised to work with US and local counsel to proactively (and sometimes defensively) register their trademarks in foreign jurisdictions, usually before ever entering those markets. In addition, particular problems can arise surrounding trademarks in multiple languages. In countries such as China where a non-Roman script is used, it is wise to register the company’s trademark (if it is a word or combination word-and-design mark) in English, in transliterated versions in the local language script, and in Romanized transliterations, such as pinyin.

She also reviewed US law governing copyrights, which is particularly relevant to computer software (see Kremers slides 11-13), and trade secrets (see Kremers slides 14-16). There are several areas where trade secret protection may be relevant to CERC activities, including those described by Mak and Baird in their presentations.

#### R&D and IP Considerations

As Ms. Kremers and others explained during their presentations, there are specific IP considerations related to conducting R&D. It is very common in the United States that in the initial stages of R&D, and especially for basic research, all participants in the research are often working under a government contract doing research funded by the federal government. As research proceeds past the basic phase and into advanced and applied research, more and more parties may join in the research that are participating under private contracts, often as subcontractors under the primary government contract. The interests of these private parties in the IP they create under their commercial contracts or subcontracts may be very different than the rights that parties to the government or “primary” contract have. The terms of these contracts are, for the most part, subject only to the privately bargained terms the parties to them agree to in the marketplace.

Royalties, ownership and licensing of background and new IP made during the contract, as well as details for the remuneration of parties, all are privately decided by the parties on commercial terms. Inventor remuneration is normally a privately contracted matter between the inventor and his employer, including his right to any royalties for later use of his inventions. Often, inventor employees do not receive any extra compensation for their inventions, which are normally assigned to their employers if inventing is within the scope of their normal employment. There

---

<sup>4</sup> Diamond v Chakrabarty, 447 US 303 (1980)

is no legal requirement in US law to allocate to an inventor any part of the profits earned or royalties paid that are attributable to his inventions with certain exceptions.<sup>5</sup>

If, however, the R&D is being conducted under a government contract (where the US government is a party), then a fixed statutory scheme for protecting Government IP rights applies, with little flexibility to change Government IP rights allocation. The upside of this lack of flexibility is that rights expectations are predictable and consistent, especially with regard to patents (see presentation by Linda Field). In the areas of software and technical data rights, the regulations are more complex but there is somewhat more room to negotiate the rights with the contracting officer. The law that usually applies is the Federal Acquisition Regulation (FAR) or agency-specific FARs.

Trade secrets are not a form of IP protection created under most US government contracts, but this does not mean they are not relevant to government-funded R&D. One major way the trade secrets may be brought into a government contracting framework is in the form of “background IP” (BIP). The BIP is the intellectual property that was created before the contract was executed or outside the scope of the government contract, but which is necessary or desirable for optimizing the research effort. BIP is often not an issue in pure basic research, but in many other contexts should be kept in mind and carefully addressed. If it is not protected properly by all performers in the research, relationships among parties can be seriously damaged and the research effort diminished or broken off entirely. This happens more frequently than many realize, even though many IP disputes may not result in litigation and even though research relationships may still continue among the same parties in other areas. Everyone in the contract has a mutual interest in protecting background IP.

Ms. Kremers noted that in her work with collaborative research consortia at DARPA, BIP is clearly defined in advance and respected by all parties. In addition, they had well-defined procedures for determining who was in the research consortium at any given time, and the procedure for leaving the consortium was all clearly spelled out in the contract so as to clarify who has ownership rights to the inventions of the consortium and who has the ability to license. A lack of clarity in determining all of these issues up front can lead to lots of difficulties after the fact.

Another issue that is relevant to US government contracts is “march-in rights.”<sup>6</sup> “March-in rights” are a form of compulsory licensing which would allow, in theory, for the US government to “march in” and grant a temporary patent license to a third party under very narrow and restricted conditions for certain public emergencies and other limited circumstances. Ms. Kremers emphasized, however, that these rights have never, to date, been exercised by the US government, and that the conditions under which such an action would be possible are extremely narrow. She characterized “march-in rights” as a last resort measure, explaining that a patent system functions best, in all but the most extreme of situations, when patent owners themselves are the determiners of when, whether, and under what conditions they allow others to use their inventions. A reliable, predictable, and consistent patent system that provides patent owners with a clear and predictable knowledge of what their rights are to their inventions and the use of

---

<sup>5</sup> See 15 U.S.C. §3710a.

<sup>6</sup> Defined in 35 USC 203

those inventions encourages investment in inventing and innovation. Compulsory licensing, or even the threat of it, tends to very quickly discourage innovators (and particularly SMEs) from engaging in innovating, including participating in government R&D projects, and it also discourages investors from putting their money into projects when they believe that ownership and use of resulting IP cannot reliably be forecast. As a result, this is something that is still very controversial after 30 years in US law.

### International R&D Considerations

There are some provisions of US patent law that can be surprisingly relevant to international R&D efforts involving US government contracts, even when the research is intended to occur entirely in a foreign country. Often in the global R&D environment it is difficult to determine where an invention was made or completed, especially since inventors and collaborators tend to travel between countries and research sites, and they do not necessarily confine their inventing activities to a single geographical location. One issue is the requirement to obtain a license from the USPTO before filing a foreign patent application. (See Kremers slide 23.) Except when authorized by a license from the USPTO, a person must (with respect to inventions made in the US) wait six months after filing a US patent application before filing a foreign patent application or utility model or design registration for that invention. This requirement is in most cases much easier to meet than it sounds, because a request for license is part of the filing form for a US patent application. Also, a retroactive license grant is available if foreign filing without the requisite license has occurred through error, without deceptive intent, and the foreign filing does not disclose an invention within the scope of 35 USC 181 relating to national security.

The United States, like China, has provisions in its law relating to national security. When publication or disclosure by publication of an application or by grant of a patent in which the US government has a property interest (this usually means federally funded) might be detrimental to national security, the Commissioner of Patents upon notice from the interest agency must order the invention be kept secret and withhold publication or grant. The determination of national security interest is normally made by the interested agency and/or the Atomic Energy Commission, Secretary of Defense. Secrecy orders must be reviewed annually and can only be maintained so long as the national interest requires an affirmative determination by the involved government agencies. In part because imposition of secrecy orders allows the patent holder to apply for compensation to the interested agency during the period of withholding from publication or grant for the amount of damages caused by the secrecy order and/or for use of the invention by the government during that period, imposition of secrecy orders are comparatively rare in the United States.

## **2. Strategies for Clean Energy Technology in the Context of Intellectual Property Law and Policy**

Jack Chang, the senior IP counsel for GE Asia and chairman of a NGO that works to fight counterfeiting in China, presented on IP issues in China relevant for clean energy technology. He began by presenting some recent research carried out by GE for the GE 2012 Global Innovation Barometer. The study conducted a survey of Chinese entrepreneurs and asked a variety of questions. It found that there was a big gap between how Chinese business people view innovation and how the rest of the world views it. For example, while most countries believe the

process leading to innovation is more important, Chinese respondents were more focused on increasing R&D investment and creating IP, and were less sold on the concept of innovation models not being static but in constant change with the changing global economy. It did find that these entrepreneurs believed innovation is key for a more competitive economy, as well as for a greener economy, and that China’s affirmative responses to these questions were somewhat higher than the global average. The study also found that those interviewed in China believe that innovation is about partnerships, that innovation brings value to society and will help address the most pressing human needs, and that it needs to be localized to serve specific market needs. It also (perhaps not surprisingly) found that in China, the government and large companies are the key driving forces for innovation, though there are increasing examples around the world of SMEs and individuals being just as innovative as large companies.

The second half of Mr. Chang’s presentation focused on characterizing China’s national innovation policy, and the various definitions of the term “indigenous innovation” (自主创新) which include “self-motivated” innovation, “indigenous and independent” innovation, “self-relied” or “self-controlled” innovation (see Chang slide 18). According to Mr. Chang, “indigenous” isn’t an accurate term because China’s strategy very much includes the importation of technology, as well as international collaboration, though such collaborations are contributing to China’s technological self-reliance. China’s innovation policy is part of China’s National Mid- and Long-Term Science and Technology Development Plan. Mr. Chang presented some key elements of the plan, which lays out a set of supporting policies and action plans including the development of IP and standards strategies and a set of targets for across various S&T metrics (for example total R&D investment and number of patents generated), as captured in Figure 1 below.

**Figure 1. Elements of China’s National Mid- and Long-Term Science and Technology Development Plan**



Source: Jack Chang, workshop presentation, slide 19.

He also discussed the topic of “forced technology transfer,” and how the overarching government strategy of importation, digestion and assimilation of foreign technologies as articulated by national innovation plans can create reasonable concerns for foreign firms. While Mr. Chang said he had never seen a case of forced technology transfer, he noted that the Chinese government is driving the policy of importing foreign technologies and assimilating them (“reverse engineering”) in the context of the indigenous innovation policy and S&T plans described above. The role of standard setting in the Chinese context and the challenges foreign firms face in establishing these standards was also flagged as a potential problem.

Despite these challenges related to China’s innovation policy, Mr. Chang explained that innovation policy is also driving change in China’s IP environment, and that high level government documents are now reinforcing the need for the strengthening of IP protection and making the linkages between IP protection and economic growth. Ultimately, the direction of China’s indigenous innovation policy will depend on how well and how rapidly Chinese enterprises integrate with the international innovation and business community, which would be positive both for the innovative ability of Chinese firms and for foreign firms operating in the Chinese context.

### **3. Overview of the CERC Protocol, IP Annex and Technology Management Plans (TMPs)**

Linda Field, the Lead Patent Counsel at the US Department of Energy, presented on DOE contracting guidelines and issues specific to the CERC. Building from Nancy Kremer’s presentation that introduced considerations related to US government contracts, Ms. Field introduced the Bayh-Dole Act, which establishes the guidelines for R&D funding agreements between the government and business, non-profit or university contractors, including how inventions are handled.<sup>7</sup> The US government reserves certain patent rights under its contracts, grants, and cooperative agreements, including the right to a government license (a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States the subject invention throughout the world); “march-in rights” (discussed initially by Nancy Kremer above); and a US manufacture requirement (requiring some direct benefit to the US economy, for example, a requirement to substantially manufacture the subject invention in the United States). DOE’s policies are directed towards making the benefits of energy RD&D programs widely available to the public in the shortest practicable time; promoting the commercial utilization of technology developed under DOE programs; encouraging participation by the private sector in DOE RD&D; and fostering competition and preventing undue market concentrations or other antitrust issues.

In the context of the CERC, the Protocol and its IP Annex (which is government to government, each government is a “Party” in her description, but the IP Annex also takes into account that the laws of each country control the allocation of rights as to any IP, including any rights a government may have) take priority in governing IP considerations. The IP Annex stipulates that 1) the Party (or the inventor, depending on national law) that makes or creates the IP, owns the IP; 2) if IP is jointly made, then it is jointly owned; 3) regardless of ownership, each party (or that party’s inventors, depending on the national law) has a (non-exclusive) right in its own territory to use or sublicense; 4) rights outside its territory are to be determined via negotiation

---

<sup>7</sup> 35 U.S.C. § 200 et seq.; Executive Order 12591 (1987)

under a Technology Management Plan (TMP); and 5) the TMP is to be jointly agreed upon by the Parties (in this case the respective governments) (see Field slide 13). Aside from these guiding rules, The CERC Protocol does not otherwise alter or prejudice the allocation of IP between a Party and its nationals, as this is determined by that Party's Laws.

The TMP serves as a "template" and provides guidance to the CERC, and established a more flexible international IP regime than other S&T agreements. It also leaves room for additional details to be negotiated as needed by the CERC participants. The TMP clarifies that the CERC participants are entitled to preferential licensing. It also establishes important guidelines concerning background IP: owners of background IP retain all right, title, and interest to it, and are not required to license, assign or otherwise transfer IP to the other participants, but may do so in the context of an appropriate license. In order to distinguish background IP from project IP, there should be a list developed and any contributors of background IP should agree in writing to its scope and nature. Key to the TMP is the guidelines surrounding the sharing of IP resulting from joint research. In the case where project IP is invented jointly by signatories to the CERC protocol from both the US and China, then it is to be jointly owned. In the case where project IP is invented by signatories from one territory only, then they agree to negotiate in good faith terms of a nonexclusive license to the participants from the other territory. There are also provisions in the TMP that encourage the sharing of data and information related to the project work with the public, except when there is a need to preserve confidentiality.

#### **4. Cases of IP Disputes in International Cooperation**

Benjamin Bai, a partner at Allen and Overy LLP in Shanghai, used hypothetical cases of disputes between Chinese and US firms to illustrate common misunderstandings and disagreements that can result from cross-border technology transactions (see Bai slides 3, 9-10). While many non-Chinese parties to agreements with Chinese companies choose non-Chinese law to govern their agreement (e.g. by stipulating in the context of a technology transfer agreement that any disputes be litigated exclusively in the Federal Court of the Southern District of New York or something along these lines), in fact, for an agreement to be enforceable in China, mandatory provisions of Chinese laws must be complied with. Foreign law gives MNCs a false sense of security when contracting with Chinese parties, and trying to use it to bypass Chinese law in reality it only adds complexity in Chinese litigation, particularly when there are inconsistencies with Chinese law. If enforcement will ultimately be sought in China, then all agreements must not violate Chinese law. There is no international treaty that requires the United States or China to recognize court judgments that occur overseas.

There is, however, the New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards, with about 142 member countries including both the United States and China. Mr. Bai advised that while arbitration is preferred over litigation, if arbitration awards are found to be in conflict with Chinese public policy, they can still be deemed invalid by a Chinese court (see Bai slides 6-8).

Issues frequently arise surrounding the topic of improvements to licensed technology. If a foreign firm licenses a technology to a Chinese firm, but then the Chinese firm makes improvements upon that technology, even if a contract said that the foreign firm reserved

ownership rights to those improvements, Chinese law essentially says that improvements cannot be owned unless they were paid for. Another issue concerns differences in the definition of “exclusive license” in US and Chinese law. While western licenses only make a distinction between exclusive and nonexclusive without further specifying the nature of an exclusive license, in Chinese, there are multiple terms, which translate as sole-exclusive, semi-exclusive, and ordinary. Exclusive is frequently translated into Chinese as semi-exclusive (排他许可) which allows the licensor to practice. If agreements have both Chinese and English versions, both have equal force (see Bai slide 11). This breeds ambiguities and leads to litigation nightmares.

As a result of these issues, Mr. Bai concluded by warning that cross-border technology transactions are full of traps for the unwary. He pointed out that US litigation can be costly and the discovery process can be abusive, and as a result Chinese companies should avoid exclusive US litigation or arbitration for dispute resolution when possible. While IP litigation in China can be problematic for foreign firms, it is improving, and US companies should consider litigation in China for certain disputes (see Bai slide 12).

## **5. Managing Patents**

Toby Mak, an intellectual property attorney at Tee and Howe in Beijing, presented the key differences between US and Chinese patent law that must be navigated in collaborative research. Dr. Mak pointed out that the world is essentially divided into two patent systems—the US system and the non-US system—highlighting the somewhat unique features of the US system internationally (see Table 1). The Chinese system is in fact much closer to other systems including the EU and Australian systems. He characterized the US system as being more patentee/applicant friendly in that there is a 1-year grace period for self-disclosure, a much broader scope for making amendments after application, and more ways to fix a patent and to adjust the term of a patent—all of which are restricted in China. Due to the differences in the US system, there are additional problems related to transferring patents from the United States to China than there would be in transferring from the European Union. This can be prevented in many cases by involving a Chinese patent attorney in drafting the initial US patent application so that potential issues can be identified before the application is filed.

Another key difference between the US and Chinese systems is the existence of the utility model patent (discussed by Nancy Kremers). While the utility model patent has many benefits that were mentioned by Nancy Kremers (they are granted quickly, and can be applied for in parallel with an invention patent), he noted that very few foreign firms are taking advantage of this system. For example, out of the more than 300,000 utility patents granted in China in 2010, only 2000 were for foreign entities. Due to the differences in the US and Chinese patent systems Mak said that the joint ownership of patent rights is not recommended in China, due to the likelihood of problems. For example, if a patent is litigated in the future, all co-owners can be held responsible. In addition, unless otherwise specified, all co-owners can license the patent without each other’s consent, allowing the license to fall into the hands of a competitor much more easily. The recommended alternative is to form a joint venture (JV) and transfer the patent to the JV for the purpose of practicing the invention. Other key differences between the US and Chinese system relate to compulsory licenses. While in the United States a compulsory license

can only be granted to the US government, in the rest of the world anyone can apply for a compulsory license if a set of conditions are fulfilled (though none have been granted in China yet to date). In addition, China has a two-track litigation system, meaning infringement and validation are trialed separately, and preliminary injunction is not granted easily.

There are specific considerations in the case of invention from joint development in the Chinese context. When inventions come from joint development, any prior agreement between parties prevails. But if there is no agreement, then inventorship has to be determined in order to determine who owns the rights, and as a result record keeping can be important for proper inventorship determination. Under Chinese law, rights can be transferred from one party to another with or without remuneration, and can be subject to further conditions such as the rights to sublicense, or exclusivity (discussed by Benjamin Bai). (Note also that, unless otherwise specified, the licensee is forbidden to sub-license without licensor's consent under Chinese contract law, so this may alleviate some of the concerns raised by Mr. Bai about defining license exclusivity.)

But if new IP arises from development during cooperation, for example on improvements on products, Chinese contract law does not allow for the licensee to be prohibited from further developing new technologies based on the licensed technologies.<sup>8</sup> It is also important to note that any inventions completed in China must obtain clearance before filing patent applications elsewhere in order to determine whether the invention concerns national security (and this is the case in the United States as well). Failure to obtain such clearance will result in the refusal of a patent grant in China or invalidation of the granted patent.

This creates a problem if you have an invention jointly invented by a US and Chinese company and you need to decide where to file first, but Dr. Mak recommends first obtaining a foreign filing license in the US and then filing a PCT application in China with Chinese SIPO as the receiving office in order to fulfill the legal requirements in both countries. Even this will not work in other countries like India, however, for example if you are not permitted to disclose the invention before filing a patent application elsewhere.

In the Chinese patent system, when selling newly developed IP, unless otherwise specified, the inventor(s), client of contracted research, and co-owner of invention, if applicable, have the first-right-of-refusal (priority rights to buy the IP under the same selling terms). For contracted research, unless otherwise specified, the entity that completes the invention owns the patent application right, however, the client of the contracted research is entitled to practice the invention for free. If any of the above is not desirable, then written agreements for the new IP should be reached so as to change the terms. For a patent license, Chinese Contract Law requires the licensor to provide necessary "information, guidance and assistance" to the licensee to practice the invention. This is problematic because such "information, guidance and assistance" may include sensitive trade secrets. It can be very difficult to sue for breach of trade secret in China, because it is very difficult to collect favorable evidence that is admissible to the Chinese

---

<sup>8</sup> According to the *Administrative Regulations on Import & Export of Technology of the PRC*, improvements in licensed technology belong to the party making the improvements.

Courts to support one's trade secret case. As a result, there are no known successful cases for trade secret breaches in China (see Mak slides 19-21).

**Table 1. Major Differences between Chinese and US Patent Laws**

CHINA	UNITED STATES
Prior art base – publications before the patent application date, and prior-use in anywhere of the world	Prior art base – publications before the patent application date, and prior-use in the US <sup>1</sup>
No grace period of disclosure except for non-prejudice disclosure	1-year grace period of self-disclosure
No continuation or continuation-in-part	Continuation or continuation-in-part available
Joint-ownership → by default, each patentee can grant non-exclusive license without consent of other patentee(s), unless otherwise agreed	Joint-ownership → by default, each patentee cannot grant non-exclusive license without consent of other patentee(s), unless otherwise agreed
Any one can apply for a compulsory license	Compulsory license only granted to the US government
Utility model available in addition to invention patent and design patent	No utility model (utility patent = invention patent)
No patent term adjustment	Patent term adjustment available
Two-track litigation – infringement and invalidation are separated	Infringement and invalidation are typically trialed together
Company or inventor can be applicant	Only inventor can be applicant
First to file	First to invent <sup>2</sup>
More non-patentable subject matters	Fewer non-patentable subject matters
Invalidation at SIPO, appeal at court	Invalidation at USPTO or court

Source: Toby Mak, workshop presentation, slides 3-5.

Notes: 1) Will change to prior-use anywhere in the world when the America Invents Act (AIA) comes into force in 2013. The AIA, enacted in 2011, aims to harmonize US patent law with international law. 2) Will change to first to file when the AIA comes into force in 2013.

## 6. The Form and Rationale of IP Allocation in Joint China-US Projects

Y.W. Chung, from Baker Botts, presented issues to consider in allocating IP ownership in the context of a US-China joint venture. Prior to establishment, both parties need to discuss the details of the technical cooperation, and disclose proprietary technologies for assessment under a mutual non-disclosure agreement (NDA), and the NDA should be signed prior to any negotiations (see Chung slide 3). Once the JV is formed, each party may provide its technology to the JV by way of transfer or license, where a transfer assigns the ownership of the technology to the JV, and a license permits the JV to use the technology within the licensed scope. The scope may apply to the period, the territory, a specific location, the production of specific products, or to specific sales markets. The technology transfer or license may serve as a designated percent contribution of the JV's registered capital, or as a sales and purchase

transaction through a transfer fee or a royalty (either one-off or periodically collected) (see Chung slides 6-7).

Mr. Chung mentioned many of the considerations surrounding improvements on licensed technology that had been mentioned by earlier speakers, including the fact that PRC law says that improvements in licensed technology belong to the party making the improvements, and that the method for sharing the improvements to the licensed technology shall be based on the agreement of the contracting parties, so frequently what happens is that the licensor will require that it owns the improvements to the licensed technology but will let the JV as the licensee use the improvements royalty-free (see Chung slides 8-9).

IP created by employees can be problematic if they incorporate their own IP into products created by the company. As a result, a JV should have employees sign a labor contract stating that they have disclosed all IP already owned, and that they will not incorporate their own IP into the JV's products. When the JV transfers technological achievements made by the employees during the course of employment, the individuals accomplishing such achievements shall have the first right of refusal to acquire such achievements upon the same conditions. When the JV uses and transfers such achievements, it is required to withhold a certain percentage of the proceeds obtained from such use and transfer as a reward or compensation to the individual who accomplished such achievements (see Chung slides 10-12).

## **7. The Patent Licensing System and Ideas for Improvements**

Geoffrey Barker, the Chief Operating Officer of RPX Corporation, presented on the US patent licensing system and how he believes it might work more efficiency. Mr. Barker has started three different companies over his career, and patents have played important roles in each, though in different ways. In the first company, while they did some very innovative work (helping the automotive industry use the internet), they never filed for patents because they did not understand that they should have. By the time they understood this it was too late because they had already received the first letters for license fees from companies that believed they had infringed on their patents. They were surprised by these letters, but did not have the resources to fight them, so had to settle and pay them. But as the company grew the problems grew. Because they owned no patents their negotiating position was very poor, and they found that patent litigation was taking up an increasingly larger share of their revenues. While they never believed they had actually infringed on another firm's patent, they could not afford to lose a trial, and they could not post bond for more than the damages that might be awarded.

His second company took a different approach and filed many patents. They became the attacker and used their own patents to keep the company alive by suing people. Eventually they decided that this was a very inefficient process, and they ended up selling the patents.

His current company, RPX, is a buyer of patents, which it then licenses to its member companies. Their member companies receive licenses to everything they buy, and there is no threat of litigation for members. Mr. Barker explained that buying and licensing patent rights is difficult and risky, because it is virtually impossible to acquire all the patents that may relate to your product or service. In fact, once you identify yourself to a firm as someone who wants to

license their technology, you become a target for that firm to turn around and sue you. If someone is willing to license to you, there can be additional complications in discovering who actually owns the patent, and conducting title due diligence. It can also be very hard to tell a good patent from a bad patent, and even experts will disagree. As a result, negotiating even a very basic license agreement can be very costly, and legal fees often surpass license fees. If you are unsuccessful in negotiating your contract, this may lead to litigation. Cross licensing is a model in which large companies agree to share licenses and not to sue each other, but even this often leads to disputes.

These complications have to do with the nature of a patent, which is an unusual asset in that it confers “negative rights;” a patent does not allow the owner to do something, rather it allows the owner to prevent someone else from doing something. In addition, understanding relationship of patents to technologies is not straightforward. Mr. Barker believes we need to examine new approaches to risk management in the patent area so that technology innovations, particularly those owned by small companies, are not killed by patent litigation. Since even competitive companies can have common interests in managing patent risk, the model of multiple companies subscribing to a patent portfolio provides a good form of insurance. RPX’s base business is one model of this, as is the Nortel/Norpax consortium (see Barker slide 9). Mr. Barker suggested that the CERC could help avoid problems by establishing terms for joint ownership from the outset with contracts.

## **8. A Proposal for a US-China Clean Energy Fund**

Tony Chao, from Applied Ventures (the VC arm of Applied materials), briefly presented a proposal for establishing a US-China clean energy fund that would help bridge the gap in moving technologies from RD&D to commercialization. The fund is envisioned as a public private partnership supported by the US and Chinese governments (led by DOE and MOST) as well as US and Chinese technology companies, governed by independent fund managers, and guided by an advisory committee. He proposed a RMB 1 billion (approximately \$160 million) fund that could be used to promote the outputs of the CERC and other US-China clean energy collaborations. Applied Ventures is a member of the US-China Energy Cooperation Program (ECP) which has been one of the advocates of the fund. They have been engaging with stakeholders in the US and China to establish support for the concept which is still in the early stages.

## **9. Implementing and Managing CERC TMPs**

Todd Glass, of Wilson, Sonsini, Goodrich and Rosati PC, presented advice for implementing and managing the CERC TMPs. His firm, along with the Asia Clean Energy Innovation Initiative, has crafted many deals and innovative JVs between companies in the US and China, and worked with DOE on a pro-bono basis to help craft the TMP.

He emphasized the importance of collaboration between the United States and China, and began by recommending actions both countries could undertake to accelerate the commercialization of clean energy technologies including: 1) create stable legal and regulatory environments; 2) price carbon; 3) create markets for renewable energy and energy efficiency; 4) advance smarter energy

infrastructure; 5) invest in first commercialization projects; 6) incentivize innovation and allow for return of profits; 7) protect US and Chinese intellectual property; 8) encourage and ensure fair and open competition between private enterprises, not governments; 9) reject economic nationalism; and 10) encourage cross-border joint ventures (contractual and equity) (see Glass slides 5-6).

Turning to practical advice for implementing and managing the CERC TMPs, Mr. Glass laid out a series of recommendations. He noted that it is important to create a safe place in which trust can be built and agreement can be reached, and that this can be facilitated by a strong non-disclosure, non-circumvention agreement. During the negotiation process, both sides should clearly identify what each party brings to the table at the outset, including by documenting background IP and other contributions such as capital, location, fast manufacturing abilities, or even the best minds. He suggested that such discussions could start with a term sheet: a very basic document in which both sides sketch out the key aspects of a deal. This can then help to negotiate a more detailed legal document down the road.

Mr. Glass emphasized that lawyers should be asked to work as problem solvers, not just problem identifiers, noting that frequently lawyers are good at identifying risk but not as good at addressing it. Since the goal is a deal that both sides are happy with, lawyers need to be reminded to be pragmatic. They should also not drive the parties prior to reaching a meeting of the minds on key issues, because ultimately it is the parties that need to agree. Both sides should strive for a fair balance of IP rights, as well as of economic benefits and risks, because if one side is perceived as winning too much, the deal is likely to eventually fall apart. As a result, interests should drive positive behavior and cooperation over the long term, so hopefully litigation can be avoided. Regarding documentation, Mr. Glass noted that there is no need to reinvent the wheel on base documents, and that it may be helpful to establish form documents that can be used in a variety of situations to streamline the process. However, they may not be appropriate for all sessions, and this needs to be considered. Lastly, he recommended that ongoing communication and cooperation be explicitly be required among CERC members to ensure that any issues will get dealt with as soon as they arise (see Glass slides 7-8).

## **10. The CERC TMP and Project Contracts**

Stacy Baird, who served as the lead attorney in negotiating the CERC Technology Management Plans, presented on the details of the Plans and related project contracts. Outlining the order of precedence for the relevant documents, he clarified that the CERC protocol is the controlling document for all CERC projects. The IP annex to the CERC protocol requires a TMP before work commences, and the TMP for each of the three consortia creates the framework for collaboration and the management of IP. The TMP can be thought of as the rules of the road for how you negotiate individual contracts for the projects, workplans, IP agreements, etc., and therefore should be looked to both for guidance and for specific requirements.

The TMP distinguishes background IP from “project” IP, and establishes rules for how rights are established and accrue within each category. In cases where there is an intersection between them, such as related to joint improvements on background IP, a separate contract will need to address this. The TMP also ensures that there are no restrictions or encumbrances that impair the

licensing of background IP to CERC participants just as a background IP licensor would in any other commercial transaction. It allows for flexibility in putting project IP allocations, terms and conditions in contracts without any automatic allocation of rights. The TMP does not add any new IP protections that the law does not otherwise provide, but it creates the framework for clarity that will help ensure the maximum protection of IP rights. Uncertainty is the enemy of both collaboration and innovation, and as a result inventors need to be comfortable with regard to the clarity and mutual understanding of rights and responsibilities.

The TMP states that the owners of background IP retain “all right, title, and interest in their Background IP” and they are not required to “license, assign or otherwise transfer” it, although using it may require an appropriate license. Anyone bringing background IP into the CERC may want to agree in writing to the scope and nature of the background IP upfront. While the TMP requires disclosures in the form of public reports, it allows for protection of confidential information, and confidentiality or NDAs may be used among participants to protect confidential information in a variety of situations (trade secrets, patentable information, state secrets, etc.). There are a few situations under the TMP in which licenses are required, including for cooperative activity from R&D and jointly funded project IP. In both cases the terms of the licenses are left to the IP owners to be fairly negotiated on commercial terms, however, when licensing to certain CERC participants (as described in the TMP) from the other country, the terms must be favorable.

A contract among the researchers is needed in any situation involving background IP not in the public domain, a need for confidentiality, where any new project IP may be created, and where there are participants from both China and the United States involved. The contracts themselves can be done either at the task level or at the sub task level, depending on whether rights are uniform across the CERC working group subtasks. All of the previous presentations have raised issues that may be relevant to the contracts established under the CERC, including that they must comply with the respective national laws of China and the United States as well government contracting regulations. In addition, the institutions of the researchers involved (including universities, national laboratories and companies) will likely have their own set of rules that must be considered in developing the contracts.

As a result, everyone involved in the CERC projects should develop appropriate internal procedures for managing IP and protecting confidential information, and contracts should comply with these requirements. Many of the key relevant national laws in China and the United States that should be considered in developing cross-border technology development or IP sharing contracts are enumerated in Table 2, shown on the following page.

## **11. Concluding Actions**

In concluding the workshop, the participants discussed next steps, and agreed to record the key findings of this workshop for CERC participants who were not able to attend in person. A second workshop that would build on the information presented in this workshop was proposed, and would likely take place in the United States in the fall of 2012. Also discussed was the potential development of an IP “toolkit” for CERC researchers that could provide useful information such as sample contract language.

**Table 2. Relevant Laws in the United States and China Governing the Cross-Border Sharing or Development of Intellectual Property**

RELEVANT LAWS OF THE UNITED STATES	
<b>1</b>	The Patent Act
<b>2</b>	The Copyright Act
<b>3</b>	Lanham Act on trademarks
<b>4</b>	U.S. and state contract law (e.g., Uniform Commercial Code)
<b>5</b>	Trade secret law (e.g., state trade secret law, e.g., Uniform Trade Secrets Act)
<b>6</b>	Export Controls on Dual-Use Technology
<b>7</b>	Government contracting requirements (e.g., Bayh-Dole & Federal Acquisition Regulations)
<b>8</b>	U.S. Foreign Corrupt Practices Act of 1977
RELEVANT LAWS OF THE PEOPLE’S REPUBLIC OF CHINA	
<b>1</b>	Patent Law of the PRC and the Implementing Rules for the Patent Law of the PRC
<b>2</b>	Trademark Law of the People's Republic of China
<b>3</b>	Copyright Law of the PRC and the Implementing Rules for the Copyright Law of the PRC
<b>4</b>	Anti-Monopoly Law
<b>5</b>	PRC Contract Law
<b>6</b>	Technology Import and Export Provisions (PRC Foreign Trade Law)
<b>7</b>	Science & Technology Progress Law (the “S&T Law”)
<b>8</b>	Interim Measures for the State-owned Assets Management of Institutional Entities
<b>9</b>	Law on Guarding State Secrets

Source: Stacy Baird, workshop presentation, slides 12-13.