

# ***"Belt and Road" Initiative and Intellectual Property Issues in Green Energy Technology Cooperation***

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**Abstract:** In recent years, technological cooperation among countries along the "Belt and Road" has become increasingly close, with a number of landmark green energy projects such as solar, wind, and photovoltaic energy being built and put into operation. The demand for cooperation among these countries is strong, but intellectual property issues remain a "hidden reef" in cooperation. This paper starts from the current status of green energy technology cooperation under the "Belt and Road" initiative, explores the challenges faced by intellectual property in technological cooperation, and proposes a Chinese solution, aiming to provide new ideas for building a regional intellectual property integration of green energy technology cooperation under the "Belt and Road" initiative.

## **1. Analysis of the Current Status of Green Energy Technology Cooperation under the "Belt and Road" Initiative**

### **1.1. Fields and Project Distribution of Cooperation**

With the high-quality advancement of green energy construction under the "Belt and Road" initiative, China has currently cooperated with more than 100 countries and regions in the fields of solar, wind, and photovoltaic energy. Chinese enterprises, leveraging their technological and cost advantages, have actively invested and built factories in these countries. The regional distribution of green energy projects is evident, mainly concentrated in Asia, Africa, and South America. According to incomplete statistics from Century New Energy Network, from January to October 2024, China and the "Belt and Road" partner countries have successively signed and carried out green energy projects: in the Southeast Asia region, PowerChina has signed an EPC general contracting contract for the San Macario Phase III photovoltaic project with AC Energy in the capital of the Philippines; in the African region, PowerChina has undertaken the Zambian emergency photovoltaic power station and the Yitingpi solar project; in the South American region, PowerChina has officially signed a contract for the San Carlos photovoltaic power station project in Argentina.

## 1.2. Participants and Cooperation Models

In the process of promoting green energy technology cooperation under the "Belt and Road" initiative, governments, enterprises, and research institutions of various countries along the route each play their roles, building a closely collaborative bridge for cooperation. Governments play a coordinating role as the upper structure; enterprises drive the transnational flow of technology oriented by market demand; research institutions provide strong technical support for cooperation. The current cooperation forms are mainly technology transfer and joint research and development. The technology transfer model usually refers to the transferor charging a certain fee and transferring the ownership or usage rights of related patents and technologies to the transferee. The ownership of intellectual property is relatively clear, but the transferor faces risks such as technology leakage, infringement, and loss of certain market advantages. Joint research and development emphasizes that the cooperating parties need to integrate resources, share risks, and share results. The ownership of intellectual property is determined based on the proportion of input and research contributions of the cooperating parties, but the cycle is long, the uncertainty is large, and cooperation risks often occur.

## 2. Real Challenges Faced by Intellectual Property in Green Energy Technology Cooperation under the "Belt and Road" Initiative

### 2.1. No Unified Legal System, Controversies over Intellectual Property Ownership

At present, the legal system related to intellectual property under the "Belt and Road" is still in the exploration stage, especially in the field of green energy technology cooperation, and a unified and complete legal system has not yet been formed. Firstly, there is a lack of practical intellectual property legal guidelines in legislation. The intellectual property guidelines that can reach a consensus among the "Belt and Road" partner countries are the "Common Initiative to Strengthen Intellectual Property Cooperation among 'Belt and Road' Countries" signed in 2017. However, the initiative is mostly about advocating cooperation at the macro level and does not provide a solution for how to handle intellectual property disputes among countries<sup>①</sup>. Secondly, the scope of intellectual property legal coordination is narrow. As of September 2024, China has signed intellectual property cooperation agreements with 57 countries, but the multilateral cooperation agreements signed between China and "Belt and Road" partner countries in the field of intellectual property seem to be limited to patent examination and authorization, focusing mainly on practical technical cooperation and exchange. There are many problems in the determination of intellectual property ownership and the definition of results, such as disputes over the main invention contributions of core technology patents and derivative technologies, and a unified, complete, and operable legal rule has not been formed.

### 2.2. Significant Differences in Intellectual Property Protection Laws among Countries along the Route

The basic national conditions of the countries along the route are different, and there are significant differences in their intellectual property legal systems. Not all countries along the "Belt and Road" are WTO members, and there are legislative differences in referring to the minimum execution standards of the "Agreement on Trade-Related Aspects of Intellectual Property Rights" (TRIPS) and the "Free Trade Agreement" (FTA)<sup>[1]</sup>. Although most Asian countries have joined the RCEP, the level of trademark protection laws varies greatly<sup>[2]</sup>. For example, Myanmar officially passed the "Trademark Law of the Republic of the Union of Myanmar" in 2023, and there was no law directly

<sup>①</sup> For specific content, see, [http://www.gov.cn/xinwen/2016-07/27/content\\_5095220.htm](http://www.gov.cn/xinwen/2016-07/27/content_5095220.htm), accessed on January 5, 2025.

related to trademark protection before that. Looking at Africa, although trademark laws were promulgated in the last century, and the African Regional Intellectual Property Organization (ARIPO) was established in 1976 and the African Intellectual Property Organization (OAPI) was created in 1977, Africa is divided into three language areas (Arabic, English, and French) due to colonial influence. The trademark protection legal system of Arabic-speaking countries is not consistent with that of English and French-speaking countries. So there are still significant differences in application categories, examination entity standards, and infringement remedies<sup>[3]</sup>.

Secondly, there are also significant differences in patent laws. For example, the patent protection period is different. The patent protection period in developed countries is long, mostly 17-20 years, while in developing countries it is mostly 15 years. When Chinese enterprises export green energy technology to partner countries, they need to be cautious about the relationship between the patent protection period and investment costs and returns. In addition, the compulsory licensing provisions are also a point that needs to be paid attention to in patent protection. For example, India, Brazil, and other countries, based on emergency situations such as energy supply, will set relatively loose compulsory licensing provisions in their patent laws, allowing the government to authorize the use of patent technology by a third party without the permission of the patent holder under special circumstances. In green energy technology cooperation, this has become a headache for innovative enterprises.

### **3. Chinese Solutions for Intellectual Property in Green Energy Technology Cooperation under the "Belt and Road" Initiative**

#### **3.1. Improve International Cooperation Agreement Rules and Clarify Property Rights Ownership**

Under the guidance of the "Belt and Road" strategy, while China is driving the improvement of technological and economic cooperation levels among countries along the route, it should also actively improve multilateral cooperation agreement rules<sup>[4]</sup>. To prevent potential intellectual property disputes, such as patent ownership and infringement risks, the cooperating parties should sign an intellectual property ownership agreement before the green energy technology cooperation agreement is reached, clarifying the ownership of results at each research and development stage. A joint management agency should be established, with technical and legal specialists from both sides responsible for the full-cycle supervision of the project's intellectual property and the detailed management of the cooperation agreement, ensuring that the agreement can be effectively implemented and guaranteeing the stable progress of green energy transnational cooperation.

#### **3.2. Strengthen Inter-country Dialogue and Persist in Regional Intellectual Property System First**

The economic development level, culture, and legal system of the "Belt and Road" partner countries are significantly different. To cope with the risks and challenges that may arise in the cooperation process, countries should strengthen dialogue and exchange. China should start from the original intention of the "Belt and Road" initiative, actively resolve contradictions between countries, enhance its discourse power in the field of intellectual property, and promote the construction of a fairer and more reasonable intellectual property protection system. On the one hand, we should continue to adhere to multilateralism. Centering around green energy cooperation projects, we need to sign intellectual property cooperation agreements with neighboring regions and countries, clarify cooperation details such as patent applications and infringement identification, and establish a fast-track for dispute resolution. On the other hand, we should collaborate with neighboring regions and

countries to set up a joint intellectual property management agency to reduce the patent litigation costs of enterprises, formulate unified intellectual property enforcement procedures, standards and legal provisions, and build a dispute settlement mechanism. Finally, during arbitration, we should ensure that the regional intellectual property system takes precedence, providing a solid legal foundation for green energy technology cooperation under the Belt and Road Initiative<sup>[5]</sup>.

### 3.3. Promote Both International and Domestic Efforts to Achieve Technological Breakthroughs and Sharing

Regional intellectual property integration not only requires adjustments in international legal systems but also requires adjustments in domestic law. China's laws should adapt to the requirements of technological innovation and continuously promote the maturity of China's laws to become the rules for resolving intellectual property disputes among partner countries. In addition to policy support, Chinese enterprises themselves should also establish brand awareness, actively seek new paths for technological breakthroughs, strive for a voice in international green energy technology cooperation, enhance brand influence, lead industry development, and complete the intellectual property layout along the "Belt and Road".

## 4. Conclusion

Green energy cooperation has become an important field for high-quality development among countries along the "Belt and Road." With the transformation of global energy, investments in green energy projects such as solar, wind, and photovoltaic energy have significantly increased, accelerating the renewal and upgrading of green energy technologies. However, trade frictions and intellectual property disputes among partner countries are also inevitable. Therefore, we should accelerate regional intellectual property integration, establish unified legal rules, and reduce legal differences between countries; promote the revision and improvement of patent laws in countries along the route, enhance the coordination of law enforcement among countries; reach consensus on the core aspects of green energy technology cooperation, and strengthen legal certainty; and enhance our own discourse power in the governance of intellectual property under the "Belt and Road," actively creating a new order of regional intellectual property integration.

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