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# FRAMEWORK OF LAWS AND POLICIES ON RENEWABLE ENERGY AND RELEVANT SYSTEMS IN CHINA UNDER THE BACKGROUND OF CLIMATE CHANGE

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## INTRODUCTION

Many countries are exerting active efforts to address climate change as human beings face its stern impacts.<sup>1</sup> In 1992, the United Nations Framework Convention on Climate Change (UNFCCC) adopted “mitigation” and “adaptation” as the major measures for addressing climate change.<sup>2</sup> “Mitigation” refers to member states using so-called “preventative responses,” either reducing greenhouse gas emissions or increasing greenhouse gas sinks, to prevent climate change.<sup>3</sup> “Adaptation” refers to measures, also called adjustment responses, which may reduce the actual or prospective negative effects of climate change on human beings by strengthening the adaptability of ecological and social systems.<sup>4</sup>

Currently, there are three major channels to control or reduce greenhouse gas emissions: first, improving energy efficiency and energy conservation; second, developing renewable energy; and third, applying the technology of carbon sequestration.<sup>5</sup> Because one of the major channels for greenhouse gas emissions reduction is the development and use of renewable energy and the enhancement of the proportion of renewable energy in the energy production and consumption structure, many UNFCCC members placed an emphasis on renewable energy policies and

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1. *See generally*, Kyoto Protocol to the United Nations Framework Convention on Climate Change, U.N. Doc FCCC/CP/1997/7/Add.1 (Dec. 10, 1997) [hereinafter Kyoto Protocol] (The Kyoto Protocol sets out detailed emissions reduction targets and has been ratified by 192 out of 212 countries.).

2. United Nations Framework Convention on Climate Change, May. 9, 1992, S. Treaty Doc. No. 102-38, 1771 U.N.T.S. 107.

3. DAVID HUNTER, JAMES SALZMAN & DURWOOD ZAEKKE, INTERNATIONAL ENVIRONMENTAL LAW AND POLICY 650 (6th ed. 2007).

4. *Id.*

5. AMERICAN BAR ASS'N, SECTION ON ENV'T, ENERGY, AND RES., GLOBAL CLIMATE CHANGE AND U.S. LAW 15 (Michael B. Gerrard ed., 2007).

laws designed to promote renewable energy development and use.<sup>6</sup> As a member of the UNFCCC and the Kyoto Protocol, China promulgated the *Renewable Energy Law* and a series of policies to create a framework of systems to uphold its international responsibilities. These actions show China's clear attitude and determination to actively address climate change.<sup>7</sup>

The main objective of this article is to look back into the history of the Chinese framework of laws and policies on renewable energy as well as to introduce the current situation and problems systematically in order to show how addressing climate change gradually became an integral part of China's renewable energy strategy. Furthermore, the article points out the problems as well as future direction of the Chinese legal system for renewable energy. This article is divided into three parts. Part 1 details the development process of the Chinese legal system for renewable energy and deeply analyzes the intrinsic relations between the legal system development for renewable energy sources and climate change. Part 2 introduces several main systems and their implementation status in the Chinese legal system for renewable energy. Part 3 introduces the principal problems of the Chinese legal system for renewable energy and suggests how to resolve these problems under the background of climate change.

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6. Zhong Hua Ren Min Gong He Guo Ke Zai Sheng Neng Yuan Fa (中华人民共和国可再生能源法) [The Renewable Energy Law of the People's Republic of China] (promulgated by Tenth Nat'l People's Cong. Feb. 28, 2005, effective Jan. 1, 2006, amended by Eleventh Nat'l People's Cong., Dec. 26, 2009, effective Apr. 1, 2010) (China), available at <http://www.chinaenvironmentallaw.com/wp-content/uploads/2008/03/renewable-energy-law.doc>; *Policy Review of Renewable Energy Sources and Energy Efficiency in the European Union and its Member States*, EC-ASEAN ENERGY FACILITY, available at [http://www.serda.ait.ac.th/cogen/62/reports/eu\\_ee\\_and\\_res\\_policies.pdf](http://www.serda.ait.ac.th/cogen/62/reports/eu_ee_and_res_policies.pdf).

7. Quan Guo Ren Min Dai Biao Da Hui Chang Wu Wei Yuan Hui Huan Jing Yu Zi Yuan Bao Hu Wei Yuan Hui, Guan Yu <Zhong Hua Ren Min Gong He Guo Ke Zai Sheng Neng Yuan Fa> (Cao an Zheng Qiu Yi Jian Gao) De Shuo Ming (关于<中华人民共和国可再生能源法> (草案征求意见稿) 的说明) [NPC Environmental and Resources Protection Committee, Instructions for the Draft of Renewable Energy Law of China] (2004), available at [http://www1.creia.net/cms/upload\\_file/news/63331011b6e467d3c7fd20bebbe8ba0d.doc](http://www1.creia.net/cms/upload_file/news/63331011b6e467d3c7fd20bebbe8ba0d.doc) (stating that Chinese officials believe that China needs to undertake international obligations according to China's international status and level of economic development to reduce the proportion of fossil fuels in the energy consumption structure, and that the development of renewable energy is very important for China to achieve that goal).

## I. INFLUENCE OF CLIMATE CHANGE ON THE PROGRESS OF POLICIES AND LAWS ON RENEWABLE ENERGY IN CHINA

### *A. Prior to UNFCCC: The Policies and Laws on Renewable Energy are Almost Vacant*

From 1949 to 1992, the basis for Chinese energy industry was so weak that China mainly focused on conventional energy development during this period. Through enforcing several five-year plans gradually, China developed petroleum, coal, and electric power vigorously.<sup>8</sup> Developing renewable energy was mainly for the purpose of rural energy construction instead of replacing conventional energy.

Concerning the adjustment mechanism, before 1992 China had been implementing the planned economy, in the field of energy China adjusted mainly by the plans and the policies. So during that time the adjustment for renewable energy development mainly depended on related policy but not the legal regulative mechanism.

The policies on renewable energy were made mainly for the purpose of rural energy construction. For instance, the *Opinions on Strengthening Rural Energy Construction*, issued by the former National Economic Commission in 1986, stated when all provinces, autonomous regions, and municipalities directly under the Central Government compiled their long-term plan for the development of rural energy, the plan should include “the research, development, and popularization plan for: firewood-saving cooker, methane, forest energy, small hydroelectric power, small thermal power, small coal mine, straw utilization, solar energy, wind energy, geothermal energy, ocean energy, a plan for energy use (including commercial coal, power and oil supplied to township enterprises), and energy conservation in rural areas.”<sup>9</sup> The technology mentioned above such

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8. In several Five-Year Plan outlines, the most important target of Chinese energy industry is developing conventional energy vigorously. Most Five-Year Plans request certain goals for developing electric power, petroleum, and coal mining. For example, The Seventh Five-Year Plan Summary for National economy and social development (1985–1990) requests that the national coal ultimate output amount to 1,000,000,000 tons and the crude oil output amount to 150,000,000 tons in 1990. Until 1992, developing the renewable energy has not been the goal of national energy strategy. Guo Min Jing Ji He She Hui Fa Zhan Di Qi Ge Wu Nian Gui Hua Gang Yao (1985–1990) (国民经济和社会发展第七个五年规划纲要(1985–1990)) National People's Congress, The Seventh Five-Year Plan Summary for National Economy and Social Development (1985–1990) (Mar. 25, 1986), available at [http://www.hprc.org.cn/wxzl/wxysl/wnj/diqigewnjh/200907/t20090728\\_16971.html](http://www.hprc.org.cn/wxzl/wxysl/wnj/diqigewnjh/200907/t20090728_16971.html).

9. Guo Jia Jing Ji Wei Yuan Hui Guan Yu Jia Kuai Nong Cun Neng Yuan Jian She De Yi Jian (国家经济委员会关于加强农村能源建设的意见) [Former National Economic Commission, Opinions

as “firewood-saving cooker,” “small hydroelectric power,” and “small thermal power” are only suitable for countryside use.

During this period, the funds put into the field of renewable energy were mainly used to develop renewable energy technology and utilization in the countryside. For example, every year during the 7th Five-year plan period, the Finance Ministry gave the financial allocation to develop the countryside energy; in the 7th Five-year technology research plan, the State Planning Commission provided funds for the research and development of renewable energy technology, and every year, provided a three million renminbi (RMB) loan to support the energy industry development in the countryside. Further, the Economic Committee gave support to renewable energy construction.<sup>10</sup>

After twenty years, renewable energy development in China has been quite magnificent and established the foundation for the country’s renewable energy technology and industry. By the end of 1993, more than 60,000 medium and small-sized hydroelectric power stations were operated in different cities, and large and medium-sized methane projects supplied gas to 84,000 families intensively. The heat utilization technology of solar energy has been changed into small scale production in varying degrees. The photovoltaic power generation of solar energy has made certain progress. The installed gross capacity of wind power generation has amounted to 26,000 kilowatts (kW).<sup>11</sup>

*B. From the Start of the UNFCCC to the Kyoto Protocol Era 1992–1997:  
The Policies and Laws on Renewable Energy Were Issued in a Sporadic  
Way*

After the 1990s, three major factors laid the foundation for China’s formulation of macro policies on the development and utilization of renewable energy. First, in 1992 China began to vigorously develop a market-oriented economy. Rapid economic development provided the material basis for the development of renewable energy. Second, Because of the rapid economic development, heavy consumption of traditional fossil

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On Strengthening Rural Energy Construction] (promulgated by National Economic Council, Dec. 30, 1986, effective Dec. 30, 1986) (China), available at <http://vip.chinalawinfo.com/newlaw2002/slc/slc.asp?db=chl&gid=161199>.

10. *Id.*

11. Zhong Guo Xin Neng Yuan He Ke Zai Sheng Neng Yuan Fa Zhan Gang Yao (1996–2010) (中国新能源和可再生能源发展纲要 (1996–2010)) [Guidelines for the Development of New Energy and Renewable Energy in China (1996–2010)] (Dec. 26, 2002), available at <http://www.ccchina.gov.cn/cn/NewsInfo.asp?NewsId=3820>.

energy has made pollution (especially air pollution) more and more serious. China saw the need to develop and utilize clean renewable energy. Third, member commitments under the UNFCCC required that all member states try their best to reduce greenhouse gas emissions.<sup>12</sup> China issued a series of policies and laws on renewable energy after 1990 due to the combined impacts of these three factors.

On the policy level, on March 25, 1994, the State Council passed the *21st Century—White Paper on Population, Environment and Development*, that pointed out “China will develop an energy industry based on coal and centering on power, actively explore petrol and natural gas, appropriately develop nuclear power, and develop new energy and renewable energy according to the local conditions.”<sup>13</sup> On January 5, 1995, the former National Planning Commission, the former National Science Commission, and the former Economic and Trade Commission put forward the *Guidelines for the Development of New Energy and Renewable Energy in China (1996-2010)*.<sup>14</sup> This guideline presented in detail the problems of the renewable energy that existed in China at that time, and the future development target as well as relevant solution measures. This document was the guiding document directing the development of new energy and the renewable energy industries in China at that time.<sup>15</sup>

On the other hand, China also released concrete and operable department rules and regulations. The Ministry of Power Industry

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12. United Nations Framework Convention on Climate Change, *supra* note 2.

13. Zhong Guo 21 Shi Ji Ren Kou, Huan Jing Yu Fa Zhan Bai Pi Shu (中国21世纪人口、环境与发展白皮书) 21st Century—White Paper on Population, Environment and Development, English version available at <http://www.acca21.org.cn/indexe6.html>, Chinese version available at <http://www.acca21.org.cn/cqa21pa.html>.

14. Guidelines for the Development of New Energy and Renewable Energy in China (1996–2010), *supra* note 11.

15. Lun Neng Yuan Zhan Lve Yu Neng Yuan Gui Hua De Fa Lv Jie Ding (论能源战略与能源规划的法律界定) Xiao Guoxing, *Legal Orientation of Energy Strategy and Energy Planning*, 42 JOURNAL OF ZHENGZHOU UNIVERSITY 69 (Philosophy and Social Sciences Ed.) (2009) (The energy policy can be divided into two types in China. One is the highest level of guiding policy, which is generally made to energy strategy, such as *Guidelines for the Development of New Energy and Renewable Energy in China (1996–2010)*. This belongs to the strategic energy policy that can determine the direction of development of the entire country in the field of energy. The other type is specific deliberated and coordinated national plans for the future, such as *Provisions on the Grid-connection and Administration of Wind Power Plant Operation*. Professor Xiao thinks that energy strategy occupies the highest position among a country's energy countermeasures system, energy planning and energy law should be subject to energy strategies, and energy planning is embodied in the energy strategy of a certain period of time. Therefore, the significance and role of the above-mentioned policy documents are expressing a certain period of national energy strategy and determining the direction of development. This role is the macro sense, rather than microscopic, specific utility.).

promulgated *Provisions on the Grid-connection and Administration of Wind Power Plant Operation (trial)* on July 26, 1994. The primary coverage of this provision is as follows. First, it makes the Ministry of Power Industry the department in charge. Second, it requests the electric administration section purchase the electric quantity completely. This is the beginning of the full guarantee purchase system. Third, it requests wind power plants satisfy certain technical standards, such as automatic monitoring systems to guarantee the safety of grid. Lastly, it pegs the electricity price for wind power plants to cost, interest, and reasonable profit. In addition, areas with higher than the average electricity prices are subsidized by the whole network jointly. This provision is the rudimentary form of a classified fixed grid price system and expenses distribution system. Generally speaking, this stipulation is simple but useful in practice.

On the legal level, the *Law on Science and Technology Progress* of 1993 was praised by experts, who said that “renewable energy enterprises and projects would benefit to a considerable degree” from this legislation.<sup>16</sup> Two provisions from this law, Article 25 and Article 46, are particularly significant. According to Article 25, “preferential policies stipulated by the State shall be applied to the enterprises and the research and development institutions engaged in the development and production of high-tech products.”<sup>17</sup> Moreover, Article 46 says that “the State shall encourage enterprises to increase the investment in research and development and in technological innovation. The technological development expenditure of enterprises shall be entered into the account as cost in its actual amount.”<sup>18</sup> Article 46 meant that investments made in research and development were exempt from corporate income tax, and thus played a proactive role in the development of solar energy and methane enterprises.<sup>19</sup>

In 1998, the production capacity for solar water heaters amounted to 4,000,000 square meters. Total installed capacity of solar water heaters

16. Zhong Guo Neng Yuan Fa Lv Ti Xi Yan Jiu (中国能源法律体系研究) RONGSI YE & ZHONGHU WU, RESEARCH OF ENERGY LEGAL SYSTEM IN CHINA 235 (2006).

17. Zhong Hua Ren Min Gong He Guo Ke Xue Ke Ji Jin Bu Fa (中华人民共和国科学技术进步法) [Law on Science and Technology Progress of the People's Republic of China] (promulgated by Nat'l People's Cong., effective Oct. 1, 1993) ch. 3, art. 25 (China), available at [www.eng.yn.gov.cn/yunnanEnglish/144397762564194304/20050616/353267.html](http://www.eng.yn.gov.cn/yunnanEnglish/144397762564194304/20050616/353267.html).

18. *Id.* at ch. 4, art. 46.

19. Zhong Hua Ren Min Gong He Guo Qi Ye Suo De Shui Zan Xing Tiao Li (中华人民共和国企业所得税暂行条例) [Provisional Regulations on Corporate Income Tax of People's Republic of China] (promulgated by the Ministry of Finance, effective Oct 13, 1993 ) art. 6 (China), (“In addition to the provisions of Paragraph 2 of this Article, deduct the other project, in accordance with the laws, administrative regulations and relevant state regulations on tax.”).

amounted to 15,000,000 cubic meters, first in the world. In addition, the applications areas for solar batteries and solar energy power generating systems expanded continuously: the production capacity for solar batteries in 1998 amounted to 4.5 megawatts (MW). The wind industry also grew from 1990 to 1998. The average annual growth rate of wind power plants surpassed 60% and the installed gross capacity in 1998 amounted to 224,000 kW. Geothermal and biomass energy also developed rapidly during this period.<sup>20</sup>

To summarize, China formulated several policies and laws on renewable energy in this phase of its development. Still, it is evident that China's policies and laws were sporadic, and focused primarily on addressing air pollution and resolving the problem of rural energy supply.

*C. The Start of the Kyoto Protocol Era 1997–2005: By Virtue of the Renewable Energy Law, the Development and Utilization of Renewable Energy Started to be Governed by Laws.*

Seeking to limit greenhouse gas emissions and counteract global warming, the UNFCCC adopted the Kyoto Protocol during its third session in December 1997.<sup>21</sup> The Kyoto Protocol, which sets the schedule of greenhouse gas emissions reductions for developed countries,<sup>22</sup> had obvious impacts on policies and legislation in the countries subject to its emissions reductions. The European Union and its member states, such as the United Kingdom, Germany, and Spain, took the lead in promulgating legislation and promoting the development of renewable energy.<sup>23</sup>

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20. 2000–2015 Nian Xin Neng Yuan He Ke Zai Sheng Neng Yuan Chan Ye Fa Zhan Gui Hua Yao Dian (2000–2015年新能源和可再生能源产业规划要点) [Main Points for New Energy and Renewable Energy Industries Development and Planning (2000–2015)] (promulgated by Nat'l Econ. and Trade Comm'n, Aug. 23, 2000) (China), available at <http://www.envir.gov.cn/info/2000/9/921307.htm>.

21. See Kyoto Protocol, *supra* note 1, at art. 2.

22. *Id.* at Annex B.

23. See, e.g., Directive 2001/77, of the European Parliament and of the Council of 27 September 2001 on the Promotion of Electricity Produced from Renewable Energy Sources in the Internal Electricity Market, 2001 O.J. (L 283/33), available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2001:283:0033:0033:EN:PDF>; Act on Granting Priority to Renewable Energy Sources, Mar. 17, 2000, (2000) (Ger.), available at [http://www.bmu.de/english/renewable\\_energy/doc/3242.php](http://www.bmu.de/english/renewable_energy/doc/3242.php); Renewables Obligation Order, 2002, S.I. 2002/914 (Eng.) repealed by S.I. 2005/926 (current version at S.I. 2011/984), available at <http://www.legislation.gov.uk/uksi/2002/914/contents/made>; The Renewables Obligation (Scotland) Order, 2002, S.I. 2002/163 (Scot.) repealed by S.I. 2004/170 (current version at S.I. 2011/225), available at <http://www.legislation.gov.uk/>; Royal Decree 2818/1998, of December 23, 1998, on Production of Electricity by Facilities Powered by Renewable Energy Resources or Sources, Waste or

Although China, as a developing country, had no specific duty to reduce emissions under the framework of the Kyoto Protocol, it could still engage in the certified emissions reduction trade with developed countries through the Clean Development Mechanism (CDM).<sup>24</sup> The CDM not only assisted developed countries in meeting emission reduction targets, but also encouraged China's enterprises to develop low-carbon strategies.<sup>25</sup> After the adoption of the Kyoto Protocol, China amplified renewable energy production and formulation of relevant policies and regulations. With regard to policies, the *Circular on the Issues of Further Supporting the Development of Renewable Energy (Circular)* specified that renewable energies include wind power, solar photovoltaic power, geothermal power, and ocean power generation.<sup>26</sup> It further specified that for renewable energy projects, the bank shall give priority to the arrangement of basic construction loans.<sup>27</sup> During the repayment period for renewable power projects connected to the state grid, the pricing principle of "repayment of principal and interest plus reasonable profits" shall apply, and if that causes the price to go above the average power price of the grid, any such increase shall be distributed across the whole grid.<sup>28</sup> By issuing this policy, the State

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Cogeneration (R.D.) (promulgated by the Ministry of Industry and Energy, Dec. 23, 1998), (1998) (Spain), available at [http://www.solarpaces.org/Library/Legislation/docs/RD\\_2818-1998\\_en.pdf](http://www.solarpaces.org/Library/Legislation/docs/RD_2818-1998_en.pdf).

24. See Kyoto Protocol, *supra* note 1, at art. 12.

25. THE WORLD BANK, CLEAN DEVELOPMENT MECHANISM IN CHINA xii (2nd ed. 2004).

26. Guo Jia Ji Wei, Ke Ji Bu Guan Yu Jin Yi Bu Zhi Chi Ke Zai Sheng Neng Yuan Fa Zhan  
You Guan Wen Ti De Tong Zhi  
(国家计委、科技部关于进一步支持可再生能源发展有关问题的通知) [Regulations Title State Planning Commission, Ministry of Science and Technology on Further Support for Renewable Energy Development-Related Issues] (promulgated by Ministry of Science and Technology/National Development and Reform Commission (including the former State Development Planning Commission, the former State Planning Commission), Jan 12, 1999, effective Jan. 12, 1999) (China), available at <http://vip.chinalawinfo.com/newlaw2002/slc/slc.asp?db=chl&gid=23113>.

27. Specifically speaking, this circular stipulated that the State Planning Commission will assist the owner of the large and medium-sized renewable energy electricity generation projects, which amount to more than 3000 kW, to obtain the bank loan. The renewable energy electricity generation projects whose capital construction loans were arranged by the bank enjoy a two percent fiscal interest discount; the central project pays by Ministry of Finance, and the local project pays by the local finance. The discounts use the form of "Pay first and discount next." The enterprise pays the loan interest to the bank first, then what was subsidized by the state. (The discount is one kind of hidden subsidy; virtually, it just provides the subsidy to the enterprise's cost and price, which is important to support the enterprise's development.)

28. The advanced place for this circular compared with pricing system stipulated in the *Provisions on the Grid-connection and Administration of Wind Power Plant Operation (trial)* is that it stipulated the profit margin of investment repayment time for both the imported equipment and domestic equipment. The profit margin of investment during the repayment period for the renewable energy incorporation electricity generation project, which is using foreign power generation equipment, does not exceed the corresponding loan rate at that time plus three percent as principle. The state encouraged

provided a good incentive mechanism for the development of renewable energy in China.

In addition to the policy incentives created by the *Circular*, the *Main Points for New Energy and Renewable Energy Industries Development and Planning (2000–2015) (Main Points)* of 2000 articulated goals and outlined a plan for developing renewable energy.<sup>29</sup> The *Main Points* defined the development objectives of new energy and renewable energy industries, prospective benefits analysis, restrictive factors, and existing problems.<sup>30</sup> The *Tenth Five-Year Plan for the Development of New Energy and Renewable Energy Industries* of 2001 clearly stated Chinese objectives, key points, policies, and measures adopted in the development of new energy and renewable energy for 2001 to 2005.<sup>31</sup>

With regard to laws, the most important event occurred when the *Renewable Energy Law* was adopted by the Standing Committee of the National People's Congress on February 28, 2005 by an overwhelming majority.<sup>32</sup>

renewable energy power generation projects to use domestic equipment, and the profit margin of investment which is using domestic power generation equipment is no less than the corresponding loan rate at that time plus five percent as principle. If the projects use the domestic equipment, then the profit rate is higher, the cost is lower, and the power price is the same as using the imported equipment—so it can improve domestic renewable energy development.

29. 2000–2015 Nian Xin Neng Yuan He Ke Zai Sheng Neng Yuan Chan Ye Fa Zhan Gui Hua Yao Dian (2000–2015年新能源和可再生能源产业发展规划要点) [Main Points for New Energy and Renewable Energy Industries Development and Planning (2000–2015)] (promulgated by Nat'l Econ. and Trade Comm'n, Aug. 23, 2000) (China), available at <http://www.envir.gov.cn/info/2000/9/921307.htm>.

30. *Id.* As the first promotion plan specializing in renewable energy industry development, this plan showed the significance of the renewable energy industrial sector in China, and played a guiding role in the development of the renewable energy industry in the Tenth Five-Year period. However, due to the explosive development of renewable energy industry since 2005 the plan was no longer satisfactory. The utilization of renewable energy originally set out in the plan was equal to 25 million tons of standard coal in 2010, up to 1.25% of the total energy consumption. In 2010, the amount actually reached was 300 million tons of standard coal, 9.6% of that year's total energy consumption. Therefore, China is making active preparation for guidance of the new energy industry development in 2012 to 2020 in *The Plan for Development of New Energy Industry*.

31. Xin Neng Yuan He Ke Zai Sheng Neng Yuan Chan Ye Fa Zhan "Shi Wu" Gui Hua (新能源和可再生能源产业发展“十五”规划) [Tenth Five-Year Plan for the Development of New Energy and Renewable Energy Industries] (promulgated by the Nat'l Econ. and Trade Comm'n, Oct. 10, 2001) (China), available at [http://english.gov.cn/official/2005-08/02/content\\_19155.htm](http://english.gov.cn/official/2005-08/02/content_19155.htm).

32. Zhong Hua Ren Min Gong He Guo Ke Zai Sheng Neng Yuan Fa Jie Du (中华人民共和国可再生能源法解读) Junfeng Li, Zhongying Wang, *Second Preamble* to INTERPRETATION OF THE LAW OF THE PEOPLE'S REPUBLIC OF CHINA ON RENEWABLE ENERGY. (Aug. 2005 ed.) (The whole course, from listed legislative planning to final adoption for Law on Renewable Energy, was only eighteen months. Many persons think “it shows that the national legislative authority and relevant authorities keep the high consistence on the consciousness of the law, and the consistence

With the promulgation of the *Renewable Energy Law*, the development and utilization of renewable energy stepped into the orbit of China's legal system.<sup>33</sup> The Kyoto Protocol was ratified less than a half-month prior to the promulgation of the *Renewable Energy Law*. Of course, the timing was not entirely coincidental, but was related closely to other factors, such as "the close concern of [the] international society on the issue of climate change."<sup>34</sup> However, the *Renewable Energy Law* failed to list the "response to climate change" as a major legislative objective, only declaring, "in order to add to energy supply, improve the energy structure, safeguard energy security, protect the environment, and realize the sustainable development of the economy and society." It was evident that the legislators' ideas of the role of renewable energy were still limited when the *Renewable Energy Law* was promulgated.<sup>35</sup>

Thanks to strengthened Chinese policies promoting renewable energy and legal governance on development and utilization of renewable energy, new energy industry development in China came into a regulatory stage in that period and gained a great achievement.

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also reflects the strong public hopes to develop clean and renewable energy and approach to the road of sustainable development.").

33. When looking back to the history of Chinese Energy Law, it is clear that Chinese energy law stems from energy policy, this is the inherent weaknesses of Chinese Energy Law. Energy policy has its advantages, but also has its connatural weakness: It is decentralized, fragmented, lacking continuity, and cannot make society form long-term expectations. In addition, there has been lack of a dominant, basic legislation to regulate the system for the development in the renewable energy field all the time. The promulgation of the *Renewable Energy Law* established the basic goal and a series of systems for development in the renewable energy field which is not parallel with the former policy. That is the reason why we draw such a conclusion.

34. See Junfeng Li, *supra* note 32.

35. See generally The Renewable Energy Law, *supra* note 6.

Table 1: The development indicators and the achievement of renewable energy during the period of Tenth Five-Year plan<sup>36</sup>

Contents	2000	The target of Tenth Five-Year plan	2005	Average growth rate per Year (%)
Generator electricity				
1. Hydropower	7935	10000	11000	6.7
2. Grid power	34	120	126	30
3. Small off-grid power	15		25	11
4. Photovoltaic power	1.9	5.3	7	30
5. Biomass power	170		200	3
Gas				
Methane (100 million cubic meters)	35	40	80	18
The rural household biogas (1000 households)	850	1000	1800	16
Heating				
1. Solar water heater (million square meters)	2600	6300	8000	25
2. Geothermal (million tons of standard coal/year)	120		200	11
Fuel				
1. Fuel ethanol			102	
2. Biodiesel			5	
The total utilization (million tons of standard coal/year)	12000	13600	16600	6.7

*D. From the Effective Date of Kyoto Protocol in February 2005 to the End of 2008: The System of Renewable Energy Policies and Laws was Established at the Preliminary Level.*

Like other developing countries, China is not compelled to restrict its emissions by the Kyoto Protocol.<sup>37</sup> Still, the Kyoto Protocol is one of

36. [11th Five-Year Plan of Renewable Energy Development] (promulgated by National Development and Reform Commission, Mar. 3, 2008), available at <http://www.sdpc.gov.cn/zcfb/zcfbtz/2008tongzhi/W020080318381136685896.pdf>.

37. Kyoto Protocol, *supra* note 1, at art. 11 (showing that China is a non-Annex-I country under the Kyoto Protocol, thus it is not liable for specific emissions reductions like developed Annex-I countries).

several factors that imposed pressure on China to heighten its renewable power development. For example, Scott Barrett stated:

The logic of the Kyoto Protocol goes something like this: The Kyoto Protocol was intended to be a first step. It requires small (about 5 per cent, on average) reductions in the emissions of industrialized (Annex I) countries for a short period of time (2008–12). Kyoto was to be followed by a sequence of other agreements—a second step, a third step, and so on—with each new agreement progressively lowering the limit on the emissions of Annex I countries. It was expected that, in time, the non-Annex I countries would also agree to limit their emissions. Eventually, it was hoped, every country would be subject to an emission cap.<sup>38</sup>

In fact, the international debate over countries' liability for emissions reductions continued even after the Kyoto Protocol took effect.<sup>39</sup> The international society is commonly concerned about China's attitude towards addressing climate change because China is a large contributor of global carbon dioxide emissions.<sup>40</sup> In addition, China is confronting both severe air pollution and the age of high oil prices.<sup>41</sup> Such factors contribute to China's strong desire for the development and utilization of renewable energy.

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38. Scott Barrett, *Climate Treaties and the Imperative of Enforcement*, 24 OXFORD REV. ECON. POLICY 239, 241 n.2 (2008).

39. See "Gong Tong Dan You Qu Bie De Ze Ren" Yuan Ze De Jie Du—Dui Ge Ben Ha Gen Qi Hou Bian Hua Hui Yi De Leng Jing Guan Cha ("共同但有区别的责任"原则的解读——对哥本哈根气候变化会议的冷静观察) Xiaogang Wang, *The "Common But Differentiated Responsibilities" Principle: An Observation on the Copenhagen Conference on Climate Change*, 20 CHINA POPULATION, RESOURCES AND ENVIRONMENT 31 (2010) (The argument between developing countries and developed countries centered on the "Common but Differentiated Responsibilities" Principle on the Copenhagen Conference on Climate Change. Developing countries, such as China and India, insist that developed countries should assume higher responsibilities, while developed countries think that the Kyoto Protocol should be amended to include developing countries such as China, India, and Brazil.).

40. CIRCE, *Climate Change and Impact Research: The Mediterranean Environment*, <http://www.circeproject.eu/index.php> (last visited Apr. 9, 2012).

41. Statistics from the environmental administration show that few main cities have good air quality. MINISTRY OF ENVIRONMENTAL PROTECTION, PEOPLE'S REPUBLIC OF CHINA, *Atmospheric Environment* (Dec. 18, 2007), [http://english.mep.gov.cn/standards\\_reports/EnvironmentalStatistics/yearbook2006/200712/t20071218\\_115208.htm](http://english.mep.gov.cn/standards_reports/EnvironmentalStatistics/yearbook2006/200712/t20071218_115208.htm). In terms of oil prices, China is an oil-deficient country and must rely on the unstable and high-price international oil market.

The promulgation of the *Renewable Energy Law* provides the basic legal framework for development and utilization of renewable energy.<sup>42</sup> However, the *Renewable Energy Law* is written in relatively general terms; only 33 articles prescribe basic principles and systems of development and utilization of renewable energy.<sup>43</sup> This lack of specificity cannot satisfy many of the practical needs that arise during the development and utilization of renewable energy. Therefore, after the promulgation of the *Renewable Energy Law*, relevant authorities such as the National Development and Reform Commission issued a series of regulations and rules to ensure the implementation of the law. These rules and regulations include the *Trial Measures for the Management of Prices and Allocation of Costs for Electricity Generated from Renewable Energy*,<sup>44</sup> the *Provisional Measures for the Administration of Special Funds for Renewable Energy Development*,<sup>45</sup> the *Provisional Measures for Allocation of Additional Income for Renewable Energy Power Price*,<sup>46</sup> and *Measures for Administration of Grid Enterprises Purchasing Full Renewable Energy Power Quantity*.<sup>47</sup> Furthermore, the National Development and Reform Commission, the Ministry of Finance, and the Ministry of Construction

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42. See The Renewable Energy Law, *supra* note 6.

43. Renewable Energy Law legal framework is drafted to set up the basic regulatory system for renewable energy, rather than to adjust the social relations directly in renewable energy field. More important, the promulgation of this law should convince investors of the unchangeable strategic development direction of renewable energy in China, which would greatly help attract long-term investment.

44. Ke Zai Sheng Neng Yuan Fa Dian Jia Ge He Fei Yong Fen Tan Guan Li Shi Xing Ban Fa (可再生能源发电价格和费用分摊管理试行办法) [The Trial Measures for the Management of Prices and Allocation of Costs for Electricity Generated from Renewable Energy] (promulgated by the Nat' l Dev. and Reform Comm'n, Jan. 4, 2006) (China), available at [http://www.gov.cn/ztl/2006-01/20/content\\_165910.htm](http://www.gov.cn/ztl/2006-01/20/content_165910.htm).

45. Ke Zai Sheng Neng Yuan Fa Zhan Zhuan Xiang Zi Jin Guan Li Zan Xing Ban Fa (可再生能源发展专项资金管理暂行办法) [Interim Measures of the Ministry of Finance for the Administration of the Special Fund for the Development of Renewable Energy] (promulgated by the Ministry of Fin., May 30, 2006) (China), available at [http://www.mof.gov.cn/mofhome/gp/jingjijianshesi/200806/t20080624\\_50274.html](http://www.mof.gov.cn/mofhome/gp/jingjijianshesi/200806/t20080624_50274.html).

46. Ke Zai Sheng Neng Yuan Dian Jia Fu Jia Shou Ru Tiao Pei Zan Xing Ban Fa (可再生能源电价附加收入调配暂行办法) [Interim Measures About the Allocation of Renewable Electricity Additional Revenue] (promulgated by the Nat'l Dev. and Reform Comm'n, Jan. 11, 2007) (China), available at <http://www.forestry.gov.cn/portal/swzny/s/774/content-103210.html>.

47. Dian Wang Qi Ye Quan E Shou Gou Ke Zai Sheng Neng Yuan Dian Liang Jian Guan Ban Fa (电网企业全额收购可再生能源电量监管办法) [Supervising Methods for the Grid Enterprise's Full Purchase the Renewable Energy Electricity] (promulgated by the State Elect. Regulation Comm'n, July 17, 2007, effective Sept. 1, 2007) (China), available at [http://www.gov.cn/gongbao/content/2008/content\\_961666.htm](http://www.gov.cn/gongbao/content/2008/content_961666.htm).

issued policies in the field of renewable energy.<sup>48</sup> Such regulations and policies flesh out the legal framework of the *Renewable Energy Law*.<sup>49</sup> Systems such as “full purchase”, “classified fixed price”, “expenses distribution,” and “economical incentives” are primarily set up in those regulations and policies by means of specific and feasible measures. They played an important role in the promotion and development of special renewable energy technologies and the renewable energy industry.

It was evident that the development and utilization of renewable energy penetrated into many fields, such as environmental protection and energy. This was especially evident in China’s response to climate change during this phase. Climate change is increasingly becoming another definite and major driving force for strengthening renewable energy policies and legislation.<sup>50</sup> China is gradually forming a large-scale system of laws and policies to deal with climate change.

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48. See, e.g., Cu Jin Feng Dian Chan Ye Fa Zhan Shi Shi Yi Jian (促进风电产业发展实施意见) *Opinions on Promotion of Wind Power Enterprises Development*; Guan Yu Jia Qiang Sheng Wu Ran Liao Yi Chun Xiang Mu Jian She Guan Li, Cu Jin Chan Ye Jian Kang Fa Zhan De Yi Jian (关于加强生物燃料乙醇项目建设管理, 促进产业健康发展的意见) [The Circular on Strengthening the Construction and Administration of Biofuel Ethyl Alcohol Projects to Promote the Industrial Healthy Development] (promulgated by the Nat’l Dev. and Reform Comm’n and the Ministry of Fin., Dec. 14, 2006) (China); Guan Yu Fa Zhan Sheng Wu Neng Yuan He Sheng Wu Hua Gong Cai Shui Fu Chi Zheng Ce De Shi Shi Yi Jian (关于发展生物能源和生物化工财税扶持政策的实施意见) [Implementation Opinions for the Development of Bioenergy and Biochemical Supporting Policies] (promulgated by the Ministry of Fin.); Ke Zai Sheng Neng Yuan Jian Zhu Ying Yong Zhuan Xiang Zi Jin Guan Li Zan Xing Ban Fa (可再生能源建筑应用专项资金管理暂行办法) [Provisional Measures for the Administration of Applicable Special Funds for Renewable Energy Construction]; Ke Zai Sheng Neng Yuan Jian Zhu Ying Yong Shi Fan Xiang Mu Ping Shen Ban Fa (可再生能源建筑应用示范项目评审办法) [Measures for Review of Applicable Exemplary Projects on Renewable Energy Construction] (promulgated by the Ministry of Fin.).

49. The Renewable Energy Law stipulates many license terms which authorize certain sectors to establish rules for related social relations, instead of stipulating rights and obligations directly, and most of the specifications are promulgated with the authority of The Renewable Energy Law. Consequently, those policies are no longer fragmented and informal but are unified in a complete legal frame work, forming a complete legal and policy system together with the Renewable Energy Law. At this point, the renewable energy development in China has finished the transition from policy-oriented to law-oriented governance.

50. President H.E. Hu Jintao of the People’s Republic of China, Speech at U.N. Summit on Climate Change 7 (Sept. 22, 2009) (“China will powerfully develop renewable energy and nuclear energy, and endeavor to the non-petrochemical energy consumption will account for about 15% in total one-off energy consumption till 2020.”).

*E. From the Eve of the Copenhagen Conference in 2009 to the End of 2011: Policies and Laws on Renewable Energy Were Gradually Perfected in China*

The Copenhagen Conference at the end of 2009 received high attention from the world because the international community hoped that a new legal agreement addressing climate change could be reached. China recognized the great importance of the Copenhagen Conference and had passed the *Decision on Actively Addressing Climate Change* (hereinafter, “the Decision”) before the conference.<sup>51</sup> The Decision clearly set out goals, including “actively and scientifically developing renewable energies such as hydropower, wind power, solar energy, and biomass energy.”<sup>52</sup>

On the level of law, the Standing Committee of the National People’s Congress adopted the *Decision on Amendment to the Renewable Energy Law* on December 26, 2009 to further accelerate the development of renewable energy and solve some outstanding problems not resolved by the implementation of the *Renewable Energy Law*.<sup>53</sup> The major variations of the amended *Renewable Energy Law* are listed as follows:

1. In the years following promulgation of the *Renewable Energy Law*, the problems of development and utilization planning of renewable energy in China turned up gradually, such as unforeseeable planning

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51. Zhong Guo Ying Dui Qi Hou Bian Hua Guo Jia Xing Dong Fang An (中国应对气候变化国家行动方案) [China’s National Climate Change Programme] (promulgated by Nat’l Dev. & Reform Comm’n, June 4, 2007) at 26, § 3.3.1, available at [www.ccchina.gov.cn/WebSite/CCChina/UpFile/File188.pdf](http://www.ccchina.gov.cn/WebSite/CCChina/UpFile/File188.pdf) (pointing out that China will powerfully develop renewable energy, actively promote nuclear power construction, and accelerate the development and utilization of coalbed methane to optimize the energy consumption mix. Until 2010, China will try its best to increase the proportion of total quantity of developing and utilizing renewable energy (including large hydropower) in the one-off energy supply mix to about 10%.); Guan Yu Ji Ji Ying Dui Qi Hou Bian Hua De Jue Yi (关于积极应对气候变化的决议) [Decision on Actively Addressing Climate Change] (promulgated by the Standing Comm. Nat’l People’s Cong., Aug. 27, 2009) (Lawinfochina) (China), available at <http://www.lawinfochina.com:83/NetLaw/display.aspx?db=law&sen=rLdDdW4drhdDdWPdrddvdW4rddDdWnd9DdxdWfd/hd6dWud/hdwdWcdrDdxdWud/ddTdWud9Dd+&Id=7652&> (noting that China will improve the structure of energy production and consumption, encourage and support the use of clean coal technologies, and actively and scientifically develop renewable energies such as hydropower, wind power, solar energy, and biomass energy).

52. Decision on Actively Addressing Climate Change, *supra* note 52.

53. Quan Guo Ren Da Chang Wei Hui Guan Yu Xiu Gai Ke Zai Sheng Neng Yuan Fa De Jue Ding (全国人大常委会关于修改<可再生能源法>的决定) [Decision on Amendment to the Renewable Energy Law] (promulgated by the Standing Comm. Nat’l People’s Cong., Dec. 26, 2009) at art. 3 (China).

goals, inconsistencies between national and regional planning, and unmatched generation and grid construction planning. Therefore, the amendment highlighted the significance of planning, improved the procedure for setting up planning, and strengthened the coherence of national and local planning.<sup>54</sup>

2. The amended *Renewable Energy Law* sets up the full guarantee purchase system. This system stipulates that relevant sectors set national annual purchase targets for generating electricity by renewable energy according to national planning for renewable energy development and utilization, and allocate it to each electricity grid company.<sup>55</sup> It also stipulates that grid companies hasten the planning and construction of the grid and develop the smart grid.<sup>56</sup>
3. The amended law merges the special funds and income from surcharges on renewable energy power prices into the renewable energy development funds. It also stipulates clearly the access cost and other relevant costs that cannot be recovered from the selling price of electricity, and allows the power grid enterprises to apply to the renewable energy development fund for subsidies.<sup>57</sup>

With regard to policies, the National Development and Reform Commission and other departments issued four recent circulars. First, the Commission released the *Circular on Perfecting the Grid Power Price Policies for Wind Power Generation* in July 2009.<sup>58</sup> In accordance with China's available wind energy resources and infrastructure, the country is divided into four kinds of wind resource areas, and a system of representative grid pricing is established in each area.<sup>59</sup> The price of the four kinds of wind resource areas were 0.51 Yuan, 0.54 Yuan, 0.58 Yuan,

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54. See The Renewable Energy Law of the People's Republic of China, *supra* note 7, at art. 8, 9.

55. *Id.* at art. 7, 8, 14.

56. *Id.* at art. 14.

57. *Id.* at art. 24.

58. Guo Jia Fa Gai Wei Guan Yu Wan Shan Feng Li Fa Dian Shang Wang Dian Jia Zheng Ce De Tong Zhi (国家发改委关于完善风力发电上网电价政策的通知) [Circular on Perfecting the Grid Power Price Policies for Wind Power Generation] (promulgated by Nat'l Dev. & Reform Comm'n, effective Aug. 1, 2009) (China), available at [http://www.sdpc.gov.cn/zcfb/zcfbtz/2009tz/t20090727\\_292827.htm](http://www.sdpc.gov.cn/zcfb/zcfbtz/2009tz/t20090727_292827.htm).

59. *Id.*

and 0.61 Yuan.<sup>60</sup> The more resources the area has, the lower the benchmarked price. Such a policy will put an end to unclear pricing systems for wind power, and the coexistence of many power prices. This policy will also be beneficial for wind power investors to obtain a reasonable return and develop wind power resources in an orderly manner. This specification further improves the classified fixed electricity system stipulated by the Renewable Energy Law.

Second, the *Circular on Perfecting Price Policies for Agricultural and Forest Biomass Power Generation* was released in July 2010. The price of power generated by projects of agricultural and forest biomass is required to carry out the policy of benchmarked grid-connected price.<sup>61</sup> The investors decided by a non-bidding method to employ the benchmarked price of RMB 0.75 Yuan per kilowatt (including tax) when they set a new project generating power by agriculture and forest biomass.<sup>62</sup> The on-grid price of the approved generating power project by agriculture and forest biomass (except the bidding projects), which was lower than the standard mentioned above, rose to RMB 0.75 Yuan per kilowatt.<sup>63</sup> Because the on-grid price of the approved project was higher than the standard above, the investors could keep their original price.<sup>64</sup> The previous on-grid price projected by agriculture and forest biomass was fixed at around RMB 0.6 Yuan, but because this was relatively low to the cost, it led to loss for those power enterprises. Undoubtedly, this Circular would improve the development of the power generating industry by agriculture and forest biomass to some extent.<sup>65</sup> However, it is said RMB 0.81 Yuan per kilowatt

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60. *Id.*

61. Guo Jia Fa Zhan Gai Ge Wei Guan Yu Wan Shan Nong Lin Sheng Wu Zhi Fa Dian Jia Ge Zheng Ce De Tong Zhi (国家发展改革委关于完善农林生物质发电价格政策的通知) [Circular on Perfecting Price Policies for Agricultural and Forest Biomass Power Generation] (promulgated by Nat'l Dev. & Reform Comm'n, effective July 18, 2010) (China), available at [http://www.sdpc.gov.cn/zcfb/zcfbtz/2010tz/t20100728\\_363362.htm](http://www.sdpc.gov.cn/zcfb/zcfbtz/2010tz/t20100728_363362.htm).

62. *Id.*

63. *Id.*

64. *Id.*

65. Trial Measures for the Management of Prices and Allocation of Costs for Electricity Generated from Renewable Energy, *supra* note 45 (It is stipulated that for biomass power generation projects whose on-grid electricity price is subject to government-fixed pricing, the price department of the State Council shall decide the benchmark price for each region, and the price shall be the benchmark price of on-grid electricity generated by desulfurized coal generators in each province (autonomous region or municipality directly under the Central Government) in 2005, plus price subsidies. The subsidy is 0.25 Yuan per kilowatt hour. The benchmark price generated by desulfurized coal generators at that time in each province was around 0.35 Yuan, so the benchmark price generated by agriculture and forest biomass was around 0.6 Yuan.).

would meet the operation requirement in this industry, and RMB 0.85 Yuan to 0.9 Yuan would result in better performance.<sup>66</sup>

Third, the *Circular on Carrying out Trial Work for Low-Carbon Provinces, Areas, and Low-Carbon Cities* was released on July 19, 2010.<sup>67</sup> It required the trial low-carbon provinces and cities to accelerate the development of burgeoning strategic industries, such as new energy, by giving the new industries political support.<sup>68</sup>

Fourth, the Ministry of Finance, National Development and Reform Commission, and National Energy Bureau issued the *Interim Measures for the Imposition and Use of Renewable Energy Development Funds* on November 29, 2011.<sup>69</sup> It contained two major amendments. First, the surcharge on renewable energy prices and the special funds for renewable energy by the Minister of Finance are merged into renewable energy development funds.<sup>70</sup> Second, it makes clear that the surcharge on renewable energy prices would not only subsidize grid enterprises for the purchase of renewable energy power, but also for the extra fees for management and grid-connection.<sup>71</sup> It provides an incentive for grid enterprises and supports the full guarantee purchase system.

The *Decision on Accelerating to Foster and Develop Strategic Burgeoning Industries* and the *Proposal of the Central Committee of the Communist Party of China concerning the 12th Five-Year Planning for National Economy and Social Development* issued by the State Council in

66. 0.75 Yuan Biao Gan Dian Jia Nan Zhu Qi Ye Niu Kui (0.75元标杆电价难助企业扭亏) [China's New Energy Website] *Benchmark Price of 0.75 Yuan is Hard to Drag Generators from Loss*, available at <http://www.newenergy.org.cn/html/01010/10191036517.html>.

67. Guan Yu Kai Zhan Di Tan Sheng Qu He Di Tan Cheng Shi Shi Dian Gong De Tong Zhi (关于开展低碳省区和低碳城市试点工作的通知) [Circular on Carrying out Trial Work for Low-Carbon Provinces and Areas and Low-Carbon Cities] (promulgated by the Nat'l Dev. & Reform Comm'n, effective July 19, 2010) (China), available at [http://www.sdpc.gov.cn/zcfb/zcfbtz/2010tz/t20100810\\_365264.htm](http://www.sdpc.gov.cn/zcfb/zcfbtz/2010tz/t20100810_365264.htm).

68. *Id.* To explain the role of this policy, we should note the difference in political systems between China and America. Because of federalism, the U.S. federal government cannot interfere with development of states. Conversely, the central government in China is powerful enough to orient the development of local governments and can decide the promotion of local government leaders; thus, the central government can draw out the "even playing field" policy to make all local governments participate in the competition, and the winner will be rewarded. As a result, the central government is inclined to obey the rule actively even without punishment.

69. Ke Zai Sheng Neng Yuan Fa Zhan Ji Jin Zheng Shou Shi Yong Guan Li Zan Xing Ban Fa (可再生能源发展基金征收使用管理暂行办法) [Interim Measures for the Imposition and Use of Renewable Energy Development Funds] (promulgated by the Ministry of Finance, Nat'l Dev. & Reform Comm'n, and Nat'l Energy Bureau, Nov. 29, 2011) (China), available at [http://zhs.mof.gov.cn/zhengwuxinxi/zhengcefabu/201112/t20111212\\_614767.html](http://zhs.mof.gov.cn/zhengwuxinxi/zhengcefabu/201112/t20111212_614767.html).

70. *Id.*

71. *Id.*

October 2010 defined the new energy industry as one of seven strategic industries to be fostered and developed over the next five years in China.<sup>72</sup> *China's Policies and Actions for Addressing Climate Change—2010 annual report*, issued by the National Development and Reform Commission in November 2010, specifies that the Chinese government views the development of low-carbon green energy as a primary means to mitigate climate change.<sup>73</sup> At the end of 2011, China's policies and legislations on renewable energy—in which the *Renewable Energy Law* is the supporting framework, and renewable energy policies are the main body—combined with legislations and policies in other relevant areas to constitute a more perfect system.

With the help of these legislations and policies, by the end of 2011, the installed wind capacity of China reached 62.733 gigawatts.<sup>74</sup> The installed capacity of grid-connected renewable energy in China reached 51.59 million kilowatts, and generating capacity reached 93.355 billion kilowatt hours, which eliminated 288.5 million tons of standard coal, 802 million tons of CO<sub>2</sub>, 620 thousand tons of SO<sub>2</sub>, and 62 thousand tons of NO<sub>x</sub>.<sup>75</sup> Of all the grid-connected renewable power capacity, wind energy reached 7.3174 billion kilowatt hours, around 78.38% of the total grid-connected power capacity; solar energy reached 914 million kilowatt hours, around 0.98% of the total; agriculture and forest biomass reached 19.121 billion kilowatt hours, around 20.48%; and geothermal power and ocean power energy reached 146 million kilowatt hours, around 0.16%.<sup>76</sup>

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72. Zhong Gong Zhong Yang Guan Yu Zhing Ding Guo Min Jing Ji He She Hui Fa Zhan Di Shi Er Ge Wu Nian Gui Hua De Jian Yi (中共中央关于制定国民经济和社会发展第十二个五年规划的建议) [Proposal of the Central Committee of the Communist Party of China Concerning the 12th Five-Year Plan for National Economy and Social Development] (promulgated by the Central Committee of the Communist Party of China, Oct. 18, 2010), available at [http://www.gov.cn/jrzq/2010-10/27/content\\_1731694\\_2.htm](http://www.gov.cn/jrzq/2010-10/27/content_1731694_2.htm). The indent on this FN needs to be removed but the formatting is not letting me do that.

73. Guo Ying Dui Qi Hou Bian Hua De Zheng Ce Yu Xing Dong—2010 Nian Nian Du Bao Gao (中国应对气候变化的政策与行动—2010年年度报告Zhong) [China's Policies and Actions for Addressing Climate Change—2010 annual report] (promulgated by the Nat'l Dev. & Reform Comm'n, Nov. 2010), available at <http://www.ccchina.gov.cn/WebSite/CCChina/UpFile/File927.pdf>.

74. *Global Wind Statistics 2011*, GLOBAL WIND ENERGY COUNCIL (July 2, 2012) available at [http://www.gwec.net/index.php?id=77&L=0&tx\\_ttnews\[backPid\]=76&tx\\_ttnews\[pointer\]=2&tx\\_ttnews\[tt\\_news\]=339&cHash=c20ecc3592](http://www.gwec.net/index.php?id=77&L=0&tx_ttnews[backPid]=76&tx_ttnews[pointer]=2&tx_ttnews[tt_news]=339&cHash=c20ecc3592).

75. Zhong Guo Xin Neng Yuan Fa Dian Fa Zhan Yan Jiu Bao Gao (中国新能源发电发展研究报告) China Electricity Council, *Research Report on the Development of Chinese New Energy Power Generation* (Mar. 15, 2012), available at <http://www.cec.org.cn/yaowenkuaidi/2012-03-15/81741.html>.

76. *Id.*

## II. CLIMATE CHANGE AND THE CREATION OF RENEWABLE ENERGY SYSTEM

While China bears no compulsory liability for emissions reductions, the systems prescribed in the *Renewable Energy Law* reference the Kyoto Protocol's Annex I countries' renewable energy policy and legislation experiences. These include the quantity target system, the renewable energy planning system, the compulsory grid-connected system, the classified grid price system, the expenses distribution system, and the special funds system.<sup>77</sup>

### A. *Quantity Target System*

The quantity target system on renewable energy is the legal requirement for the proportion of renewable energy in the energy production or consumption mix.<sup>78</sup>

The main contents of the Kyoto Protocol are the target and schedule for greenhouse gas emissions reductions for developed countries listed in Annex I.<sup>79</sup> Based on the schedule and targets for emissions reductions in the Kyoto Protocol, many developed countries determined their targets and schedules for renewable energy development through domestic legislation or policies. For example, Article 4 of the Council of the European Union's (E.U. Council's) 1998 *Decision on Renewable Energy* pointed out that by 2010, the quantity of renewable energy use in the E.U. as a whole will increase by 12%.<sup>80</sup> The *Common Standpoint of the Directive on the Utilization of Renewable Energy Power Generation*, issued by the E.U. Council in 2001, noted that renewable energy consumption should account for 12% of the total global energy consumption in 2010, and the E.U.'s proportion of renewable energy power consumption should reach 22.1% by 2010.<sup>81</sup> Denmark formulated an energy action plan for "21<sup>st</sup> century energy," requiring a 20% reduction of the whole country's CO<sub>2</sub> emissions,

77. *Second Preamble* to Interpretation of the Law of the People's Republic of China on Renewable Energy, *supra* note 33, at 16–38.

78. *See* The Renewable Energy Law of the People's Republic of China, *supra* note 7, at art. 4.

79. *See* Kyoto Protocol, *supra* note 1.

80. The Council of the European Union, Council Resolution of 8 June 1998 on Renewable Sources of Energy, 1998 O.J. (C 210), *available at* [http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31998Y0624\(01\)](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31998Y0624(01)).

81. Council Common Position (EC) No. 18/2001 of 23 March 2001, Common Position on the Promotion of Electricity Produced from Renewable Energy Sources in the Internal Electricity Market, 2001 O.J. (C 142), *available at* <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2001:142:0005:0015:EN:PDF>.

as compared to 1998 levels by 2005, and a 50% reduction by 2030.<sup>82</sup> The Spanish government put forward a national total volume objective that renewable energy would account for 12% of total energy consumption and 29% by 2010.<sup>83</sup> Australia announced that by 2010, renewable energy power generation should increase to 25.5 billion kilowatt-hours, accounting for 12% of total power generation in the whole country, and the supply of renewable energy would increase 2%.<sup>84</sup>

When drafting and formulating the *Renewable Energy Law*, China used legislation and experiences of developed countries and institutions as references. When designing the “quantity target” system in the *Renewable Energy Law*, the Chinese government accounted for the reality of renewable energy infrastructure in China. The law specifies the “quantity target” system. Article 4 states, “[t]he Government lists the development of utilization of renewable energy as the preferential area for energy development and promotes the construction and development of the renewable energy market by establishing total volume for the development of renewable energy and taking corresponding measures.”<sup>85</sup> At the same time, Article 7 states:

Energy authorities of the State Council set[] middle and long-term target[s] of the total volume for the development and utilization of renewable energy at the national level, which shall be implemented and released to the public after being approved by the State Council. Energy authorities of the State Council shall, on the basis of the target of [the] target of total volume in the previous paragraph, as well as the economic development and actual situation of renewable energy resources of all provinces, autonomous regions and municipalities, cooperate with people’s governments of provinces, autonomous regions and municipalities in establishing middle and long-term target[s] and releas[ing] [them] to the public.<sup>86</sup>

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82. Svend Auken, *Energy 21: The Danish Government’s Action Plan for Energy* (Apr. 1996), available at [http://193.88.185.141/Graphics/publikationer/energipolitik\\_uk/e21uk/index.htm](http://193.88.185.141/Graphics/publikationer/energipolitik_uk/e21uk/index.htm) (follow “Energy 21” hyperlink; then follow “1.1 Objectives of Energy Policy” hyperlink).

83. *Second Preamble* to INTERPRETATION OF THE LAW OF THE PEOPLE’S REPUBLIC OF CHINA ON RENEWABLE ENERGY, *supra* note 33, at 20.

84. *Id.*

85. See The Renewable Energy Law of the People’s Republic of China, *supra* note 7, at art. 4.

86. *Id.* at art. 7.

In accordance with the provisions in the *Renewable Energy Law*, China issued the *Medium-Long Term Development Planning for Renewable Energy* in August 2007, which pointed out that the medium-long term development objective was that “renewable energy consumption would account for 10% [of] the total energy consumption [by] 2010, [and] 15% [by] 2020.”<sup>87</sup> The *Renewable Energy Law*, as amended in 2009, further requires:

[T]he proportion of renewable energy power generation in the total power generation, which shall be reached during the planning period, is determined by the energy authority of the State Council, together with the national power supervisory institution, and the financial authority of the State Council in accordance with the nation-wide planning for development and utilization of renewable energy.<sup>88</sup>

Notice that China must resolve any conflicts between the quota system, also known as compulsory market shares, and the quantity target system. The total quantity target system for renewable energy—the provisions that determine the proportion of renewable energy development, production, and consumption compared to total energy production and consumption—is a form of compulsory shares or quotas. Once a quantity target is determined, it may be fulfilled using economic incentives, such as a fixed price grid system or a quota system. The existing renewable energy laws and policies in China are implemented through classified fixed prices (economic incentives), rather than an index quota method like the lowest power generation used by the UK.<sup>89</sup>

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87. Ke Zai Sheng Neng Yuan Zhong Chang Qi Fa Zhan Gui Hua (可再生能源中长期发展规划) [Medium and Long Term Development Plan for Renewable Energy in China] (promulgated by the Nat'l Dev. & Reform Comm'n, Sept. 4, 2007) (Abbreviated Version, English Draft), available at <http://www.chinaenvironmentallaw.com/wp-content/uploads/2008/04/medium-and-long-term-development-plan-for-renewable-energy.pdf>.

88. See The Renewable Energy Law of the People's Republic of China, *supra* note 7, at art. 14.

89. The lowest power generation is the quota system that requires power plants to generate specified amounts of renewable energy power. For example, in England, the 2009 Renewables Obligation Order stipulates that the Secretary of State determine the total number of renewable energy obligation certificates required to be produced by designated electricity suppliers (“the total obligation”) for an obligation period. Renewables Obligation Order, 2009, S.I. 2009/785, art.11 (U.K.), available at <http://www.legislation.gov.uk/uksi/2009/785/article/11/made>.

### *B. Planning System of Renewable Energy*

The term “planning system” refers to a long-term overall plan formulated to achieve tasks in the future. The renewable energy planning system is a long-term plan made by the state or government to achieve the quantity target for renewable energy development.<sup>90</sup> In order to achieve the quantity target for renewable energy, the *Renewable Energy Law* states:

The relevant authorities of the State Council shall prepare [a] national renewable energy development and utilization plan which will promote the achievement of middle and long-term [] quantity target[s] of renewable energy throughout the country . . . Energy authorities of the people’s governments at the level of province, autonomous region[,] and municipality shall, on the basis of the middle and long-term objective[s] for the development and utilization of renewable energy, cooperate with relevant authorities of the people’s governments at their own level in preparing national renewable energy development and utilization plan[s] for their own administrative regions, which shall be reported to energy authority of the State Council and the national power supervisory institution for record and be implemented after being approved by people’s governments at their own level.<sup>91</sup>

The *Renewable Energy Law* places particular emphasis on two things. First, the law highlights the relationship between renewable energy planning and quantity targets. For example, the *Renewable Energy Planning System* should achieve the medium-long term objective in the development and utilization of renewable energy.<sup>92</sup> Second, the connection between local and national planning for renewable energy, i.e., the nationwide renewable energy plan, should be the template for local renewable energy plans.<sup>93</sup> The national energy authority and power supervisory institution must also strengthen their supervision of local renewable energy planning records, to ensure the achievement of quantity targets for renewable energy.<sup>94</sup>

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90. See The Renewable Energy Law of the People’s Republic of China, *supra* note 7, at ch. 2.

91. *Id.* at art. 8.

92. *Id.*

93. *Id.*

94. *Id.* at art. 18.

C. “Full Guarantee Purchase,” “Classified Fixed Grid Price,” “Expenses Distribution,” and “Economic Incentive” Systems

The measures for dealing with climate change in developed countries impacted China with regard to both the quantity target system in the development of renewable energy, and the specific systems and measures to fulfill the quantity target system. Such measures include the full guarantee purchase or compulsory grid-connected system, the fixed grid price system, the expenses distribution system, and the economic incentive system stipulated in the *Renewable Energy Law*.

### 1. Full Guarantee Purchase

The “full guarantee purchase” system for renewable energy, also called the “compulsory grid-connected” system, refers to the statutory system which requires all renewable energy power to be purchased by grid enterprises or be connected to a grid.<sup>95</sup> An important difference between electricity produced by renewable energy and traditional energy lies in the inherent instability of many renewable energy sources due to intermittent power production. Whether solar energy or wind energy, this inherent instability is such that grid enterprises might exclude renewable energy power from grid connections.<sup>96</sup> Some developed countries cleared away the technical and systematic obstacles for the development of renewable energy through policies and legislation in order to achieve the renewable energy quantity target and address climate change. Germany and Spain use a “full priority purchase” system, while others adopted quotas.<sup>97</sup> Because of

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95. *Id.* at art. 14.

96. Huan Wang, *Analyzing the Key Technologies of Large-Scale Application of PV Grid-Connected Systems*, 2010 International Conference on Power System Technology, <http://wenku.baidu.com/view/23282b66ddccda38376baf14.html> (last visited April 17, 2012).

97. Gröschel Geheeb, Federal Ministry for the Env't, Nature Conservation, and Nuclear Safety, EEG- The Renewable Energy Sources Act: The Success Story for Sustainable Policies for Germany (2007) (Ger.), available at [http://www.gtai.com/uploads/media/EEG\\_Brochure\\_01.pdf](http://www.gtai.com/uploads/media/EEG_Brochure_01.pdf) (The *Law on Priority Renewable Energy* of Germany specifies, “the grid operators shall be liable to bring renewable energy power into the operation network, to give priority to purchase full electricity quantity provided by renewable energy.” The 1998 *Power Transmission Law* of Germany states, “the grid operators shall accommodate total renewable energy power in the supply power grid, and reimburse the transmission power. If the renewable energy power plant is not in the power supply area of the grid operator, the grid operator which is the nearest to this power plant shall have the liability to accommodate.”); Production of Electricity by Facilities Powered by Renewable Energy Resources or Sources (B.O.E. 1998, 312) (Spain), available at [http://www.solarpaces.org/Library/Legislation/docs/RD\\_2818-1998\\_en.pdf](http://www.solarpaces.org/Library/Legislation/docs/RD_2818-1998_en.pdf) (requiring units in the renewable energy power station be connected with the grid of a power distribution

Germany's outstanding renewable energy performance, and China's dire need and strong desire to develop renewable energy, China used the German "full purchase" system as a reference when developing the *Renewable Energy Law*.<sup>98</sup>

The "full purchase" system was established in the Renewable Energy Law of 2005. China then issued Administrative Provisions on Renewable Energy Power Generation on Jan 5, 2006, and Regulatory Measures for Grid Enterprises' Full Purchase of Renewable Energy Electricity on July 25, 2007. These two regulations give detailed provisions on the procedure of full amount purchase, liability for power generation enterprises, liability for grid companies (mainly from the technological perspective), and duties of SERC.<sup>99</sup> However, the effects of these regulations were not as expected. Take wind power as an example. First, the regions with abundant wind power resources usually lag behind in grid construction, and the grid construction could not follow the rapid development of wind power generation.<sup>100</sup> Second, the current technology in grid enterprises could hardly guarantee the secure operation of grid connections to renewable energy power.<sup>101</sup> Third, the equipment of wind power generation is so advanced that electric generation accidents occur frequently, which heavily

enterprise. If it is feasible for the grid to absorb at the technological level, the additional output power shall be transmitted into grid through power distribution enterprise.).

98. See The Renewable Energy Law of the People's Republic of China, *supra* note 7, at art. 24, 25.

99. (国家发展改革委关于印发《可再生能源发电有关管理规定》的通知) [Notice of the National Development and Reform Commission on Issuing Administrative Provisions on Renewable Energy] (promulgated by State Development and Reform Commission, Jan 5, 2006, effective Jan 5, 2006) [en.pkulaw.cn](http://en.pkulaw.cn) (China), available at [http://en.pkulaw.cn/display.aspx?id=8989&lib=law&SearchKeyword=Administrative Provisions on Renewable Energy Power Generation&SearchCKeyword=](http://en.pkulaw.cn/display.aspx?id=8989&lib=law&SearchKeyword=Administrative+Provisions+on+Renewable+Energy+Power+Generation&SearchCKeyword=); (电网企业全额收购可再生能源电量监管办法) [Regulatory Measures for Grid Enterprises' Full Purchase of Renewable Energy Electricity] (promulgated by State Power Regulatory Commission, July 25, 2007, effective Sept. 1, 2007) [en.pkulaw.cn](http://en.pkulaw.cn) (China), available at [http://en.pkulaw.cn/display.aspx?id=9081&lib=law&SearchKeyword=Regulatory Measures for Grid Enterprises' Full Purchase of Renewable Energy Electricity&SearchCKeyword=](http://en.pkulaw.cn/display.aspx?id=9081&lib=law&SearchKeyword=Regulatory+Measures+for+Grid+Enterprises'+Full+Purchase+of+Renewable+Energy+Electricity&SearchCKeyword=).

100. Quan Guo Feng Li Fa Dian Biao Gan Shang Wang Dian Jia Biao (全国风力发电标杆上网电价表) [Table of National On-grid Electricity Benchmark Price of Wind Power Generation], available at <http://www.ndrc.gov.cn/zfdj/jggg/dian/W020090727546284276176.pdf> (showing that regions with abundant wind power resources of I and II groups are in the middle and western parts of China such as Neimenggu Province, Xinjiang Province, and Gansu Province, where the grid construction is normally not as developed as other regions).

101. Huan Wang, *Analyzing the Key Technologies of Large-Scale Application of PV Grid-Connected Systems*, 2010 International Conference on Power System Technology, <http://wenku.baidu.com/view/23282b66ddccda38376baf14.html> (last visited Apr. 17, 2012) (proposing new electrical solutions to secure grids destabilized by connections to renewable energy power sources).

impaired enterprises' intent to purchase electricity by wind generation to ensure grid security.<sup>102</sup> Lastly, the investment cycle for grid-connected enterprises is longer with fewer rewards.<sup>103</sup> On the whole, it is impossible for grid enterprises to purchase electricity generated by renewable energy in full amount in reality, and compulsory purchase is not feasible under the cost and effect principle. Consequently, the "full purchase" system was modified, and became the "full guarantee purchase" system in the Renewable Energy Law as amended in 2009. The amendments stipulate, "[t]he state carries out the system of full guarantee purchase of renewable energy power generation."<sup>104</sup> The Renewable Energy Law determines three "guarantee" measures. First, it requires that according to the plans of national development and utilization of renewable energy, relevant state departments determine the annual purchase target of generation capacity, allocate it to each grid enterprise, and dispatch the minimum purchase target for each grid enterprise.<sup>105</sup> Second, the law requires "[p]ower grid enterprises [to] strengthen the power grid construction, expand the scope of areas where electricity generated by using renewable energy resources is provided, develop and apply intelligent power grid and energy storage technologies, improve the operation and management of power grids,

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102. Feng Dian An Quan Jian Guan Bao Gao (风电安全监管报告) [Report on Regulations on Wind Power Generation Safety] (promulgated by the State Electricity Regulatory Comm'n, Dec. 2, 2011) (reporting that from January to August 2011, there were 193 accidents on out-grid of electric generating set of wind power, of which there were 54 accidents losing wind power electricity around 100-500 thousand kilowatts, and 12 accidents losing wind power electricity above 500 thousand kilowatts).

103. See (国家发展改革委关于印发《可再生能源电价附加收入调配暂行办法》的通知) [Notice of the National Development and Reform Commission on issuance of the Interim Measures for Allocation of Income from Surcharges on Renewable Energy], (promulgated by State Development and Reform Commission Jan. 11, 2007, effective Jan. 11, 2007) en.pkulaw.cn, at art. 9 (China), available at [http://en.pkulaw.cn/display.aspx?id=8973&lib=law&SearchKeyword=Interim Measures for Allocation of Income from Surcharges on Renewable Energy&SearchCKeyword=](http://en.pkulaw.cn/display.aspx?id=8973&lib=law&SearchKeyword=Interim+Measures+for+Allocation+of+Income+from+Surcharges+on+Renewable+Energy&SearchCKeyword=) (explaining grid-access expenses for renewable energy power generation projects refer to transmission investments and operation and maintenance costs that are incurred for renewable energy projects to become grid-connected. Standards for grid-access expenses are established according to the line length: 1 fen/kWh within 50 kilometers; 2 fen/kWh for 50-100 kilometers; and 3 fen/kWh for over 100 kilometers); see The Renewable Energy Law of the People's Republic of China, *supra* note 7, at art. 21 (explaining access cost and other relevant expenses reasonably incurred to an electricity grid enterprise due to its purchase of electricity generated by using renewable energy may be reckoned in its electricity transmission cost and be recoverable from the selling price of electricity. Therefore, these fees could be added into the fixed price and be recovered from the selling price. If access cost for grid enterprises is higher than the standard price in the above regulations, it could be subsidized by the National Development Fund on Renewable Energy. However, the great capital gap for the subsidy and long subsidy circle make it hard for enterprises to be repaid by their investment.).

104. See The Renewable Energy Law of the People's Republic of China, *supra* note 7, at art. 14.

105. *Id.*

improve the ability for absorbing electricity generated by using renewable energy resources, and provide services for bringing electricity generated by using renewable energy resources on grid".<sup>106</sup> Third, for the access cost and other relevant costs that cannot be recovered from the selling price of electricity, the power grid enterprises may apply to the renewable energy development fund for subsidies.<sup>107</sup> This article is instrumental in solving the problem of recovering costs paid for grid-connection.

## 2. Classified Fixed Grid Price

The purpose of a "full purchase" system is to solve the grid-connection problem for power generated by renewable energy power plants. Because the development and utilization of some types of renewable energy are restricted by technology, raw materials, and resources, the development and utilization costs are higher than those of fossil energy.<sup>108</sup> If a renewable energy power plant must trade with the grid enterprise in accordance with the price of fossil energy power generation, the renewable energy power plants are unfavorable due to high prices. As a result, all countries subsidize renewable energy power to reduce its price.<sup>109</sup> Moreover, because of the different levels of energy technologies and endowments, costs of different types of new energy are different, and the costs of the same kind of new energy power generation projects varies in different regions. Therefore, the price should be determined according to the different types and different regions in order to reflect the true cost of power generation. For example, Germany determines grid power prices based on different classifications according to the level of technological development and available resources.<sup>110</sup> China uses the German approach to carry out its "classified fixed grid price." Article 19 in the *Renewable Energy Law* states:

[g]rid power price of renewable energy power generation projects shall be determined by the price authorities of the State Council in the principle of being beneficial to the development and utilization of renewable energy and being economic and reasonable according to the generation power characteristics of various kinds of renewable energy

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106. *Id.*

107. *Id.* at art. 24.

108. INTERNATIONAL ENERGY AGENCY, WORLD ENERGY OUTLOOK: EXECUTIVE SUMMARY 9 (2010), available at <http://www.iea.org/weo/2010.asp>.

109. *Id.*

110. See GEHEEB, *supra* note 97.

and specific circumstances of various areas, where timely adjustment shall be made on the basis of technological development for the development and utilization of renewable energy. The price for grid-connected power shall be publicized.<sup>111</sup>

After promulgation of the *Renewable Energy Law*, the national price authority issued a series of policies on renewable energy pricing and determined different fixed prices for different renewable energy technologies.<sup>112</sup> The representative power prices of wind power generation are divided into four grades: 0.51, 0.54, 0.58, and 0.61 RMB/kilowatt-hour.<sup>113</sup> Solar energy photovoltaic grid power prices are between 0.8 and 1.5 RMB/kilowatt-hour.<sup>114</sup> Biomass grid power prices are between 0.4 and 1.0 RMB/kilowatt-hour.<sup>115</sup>

A classified fixed grid price has several advantages. First, the fixed price sends a clear signal to the market, which can help renewable energy power generators calculate the costs and benefits. Second, the classified price determined by different technologies and regions helps guide industry

111. Trial Measures for the Management of Prices and Allocation of Costs for Electricity Generated from Renewable Energy, *supra* note 44 (These measures were issued to carry out governmental directive prices for wind power generation projects, and the price standard is determined by the price authority of the State Council through tendering price. Biomass power generation projects may apply the governmental directive price or the price determined by government; solar energy, ocean energy and geothermal energy power generation projects shall apply the prices determined by the government.)

112. See The Renewable Energy Law of the People's Republic of China, *supra* note 6, at art. 14.

113. Circular on Perfecting the Grid Power Price Policies for Wind Power Generation, *supra* note 58 (Wind resources areas are divided into four kinds in the country, and different wind resources areas apply different grid power prices.)

114. See Jingli Shi, *Introduction to Applicable Prices and Policies for Renewable Energy in China, the Pricing System and Policies Training for Renewable Energy Power* ("The state issued no uniform pricing policy on solar energy Photovoltaic grid power. The Photovoltaic grid power prices are including: (1) the price determined by the state: the national price authority determines the price according to PV projects, one project applies one approved price. At present, the national price authority only approved the power prices for eight PV projects: in 2008 and 2009, the National Development and Reform Commission approved two projects in Shanghai, one project in Inner Mongolia, one project in Ningxia, the price is 4 RMB/kilowatt-hour; in April 2010, approved the temporary grid power price of 1.15 RMB/kilowatt-hour for four projects in Ningxia. (2) Tendering power price: in June 2009, the project of ten thousand kilowatt desert power station in Dunhuang determined the bidding developer, and the price was 1.09 RMB/kilowatt-hour. In September 2010, the power price is 0.7288-0.9907 RMB/kilowatt-hour based on the accepted bidding result for 13 projects of 280 thousand kilowatt in six provinces and regions in northwest China. (3) Local fixed power price: in Jiangsu, 2.15, 1.7 and 1.4 RMB/kilowatt-hour; in Shandong, 1.7 and 1.4 RMB/kilowatt-hour.").

115. See Trial Measures for the Management of Prices and Allocation of Costs for Electricity Generated from Renewable Energy, *supra* note 44, at art. 8, 9; see also Circular on Perfecting Price Policies for Agricultural and Forest Biomass Power Generation, *supra* note 61.

development and achieves the goal of macroeconomic regulation and control. Third, it is convenient and simple in practice compared to a quota system.

On the other hand, a classified fixed grid price also has some disadvantages. First, it does not have a quantity target regarding the supply of renewable energy power, thus it cannot guarantee the realization of the quantity target system. Second, because the responsibilities for developing renewable energy fall on the government and society, enterprises lack the driving force for development. In the long run, with the rapid development of China's renewable energy industry, renewable energy production and consumption will grow explosively and governments will face great demand for subsidies which will be harder to meet. In 2010, the subsidies gap was about \$2 billion, and in 2011, the gap was \$10 billion. As a result, the state had to attach the power raised to 8% from 4% per kWh at the end of 2011.<sup>116</sup>

### 3. Expenses Distribution

The main objective of the system of "expenses distribution" is to determine who should pay the surcharge on renewable energy power generation. The United Kingdom distributes the expenses of renewable energy development among all power suppliers, while Australia and Germany distribute the expenses among final consumers.<sup>117</sup> Using these foreign experiences as a reference, China decided to distribute the additional expenses among final power consumers. The *Renewable Energy Law* prescribes:

[T]he difference between the expenses of grid enterprises to purchase renewable energy power quantity and the expenses which are calculated as per the average grid power price of traditional energy power generation, shall be reimbursed by charging the additional renewable energy power price on the basis of the selling power quantity in the whole country.<sup>118</sup>

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116. Wo Guo Ke Zai Sheng Neng Yuan Dian Jia Fu Jia Zheng Shou Biao Zhun Ti Gao Yi Bei (我国可再生能源电价附加征收标准提高一倍) [*Surcharges on Renewable Energy Power Has Raised Double*] XINHUA NET, 2011, available at [http://news.xinhuanet.com/fortune/2011-12/21/c\\_122457007.htm](http://news.xinhuanet.com/fortune/2011-12/21/c_122457007.htm).

117. Li & Wang, *supra* note 32, at 16–38.

118. The Renewable Energy Law of the People's Republic of China, *supra* note 6, at art. 20.

Specifically, the scope of consumers facing the surcharge is determined by Article 13 of Trial Measures for the Management of Prices and Allocation of Costs for Electricity Generated from Renewable Energy, which says:

Surcharges to the price of electricity generated from renewable energy shall be collected from electric consumers within the service range of power grid enterprises at or above the provincial level (including the bulk sale targets of the provincial power grid enterprises, consumers with self-equipped power plants, and large consumers purchasing electricity directly from power plants). Electricity consumers of county self-supplied power grids and consumers located at Tibet or engaged in agricultural production shall, for the time being, be exempted from said surcharges.<sup>119</sup>

As to the standard of price, the surcharge system started in June 2006 at a price of 0.2 cent per kilowatt-hour. It doubled to 0.4 cent per kilowatt-hour in November 2009, and it raised to 0.8 cent per kilowatt-hour in December 2012.<sup>120</sup> As to the usage of the surcharges, the surcharges to the price of electricity generated from renewable energy would be counted in the sales price of electricity of power grid enterprises, which would be levied as a value-added tax and income tax.<sup>121</sup> In addition, the surcharges would be allocated and scheduled during those grid enterprises with a long cycle. Since issuance of the *Interim Measures for the Administration of the Collection and Use of the Renewable Energy Development Fund* in 2011, the surcharges are no longer counted in the sales prices of electricity of power grid enterprises. Instead, it is included in the renewable energy development fund and is scheduled accordingly. In addition, the income from surcharges on renewable energy power prices subsidize a portion of the reasonable grid connection expenses and other reasonable expenses paid

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119. Trial Measures for the Management of Prices and Allocation of Costs for Electricity Generated from Renewable Energy, *supra* note 44.

120. Because industries are major electricity users, enterprises take the majority of responsibility. Surcharges have little effect on residents. Assuming a family consumes 300 kWh per month, the price is 0.48 Yuan per kWh, and the surcharge is only 2.4 Yuan.

121. Trial Measures for the Management of Prices and Allocation of Costs for Electricity Generated from Renewable Energy, *supra* note 44, at art. 17 (“Surcharges to the price of electricity generated from renewable energy shall be counted in the sales price of electricity of power grid enterprises, collected by power grid enterprises, accounted separately and used for designated purposes only.”).

by a power grid enterprise for the purchase of electricity generated from renewable energy that is unable to be recovered from the retail power price.<sup>122</sup>

#### 4. Economic Incentive

Another barrier that restricts the development and use of renewable energy in China is inadequate funding. This is because the absence of funds restricts renewable energy technology research and development, introduction of foreign advanced technology, construction of renewable energy infrastructure, and investments for establishing plants. For this reason, technology and funding are concerns for developing countries in the international negotiations regarding climate change. The “expenses distribution” system solves the problem of sharing additional costs of renewable energy that are higher than traditional energy power generation. That system, however, does not solve the problem of financial barriers restricting renewable energy development on fundamental matters such as technological research and development, equipment manufacture, and resource exploitation. Therefore, Chapter 6 of the *Renewable Energy Law* stipulates economic incentives including special funds, development foundations, preferential loans, and tax preferences.<sup>123</sup>

The *Renewable Energy Law* of 2005 stipulates, “[T]he state finance sets up the special funds for renewable energy development.”<sup>124</sup> After the implementation of the *Renewable Energy Law*, the Ministry of Finance issued the *Provisional Measures for the Administration of Special Funds for Renewable Energy Development* in 2006, which states that the special funds for renewable energy development are “set up by the finance authority of the State Council by laws, for the purpose of supporting the special funds for the development and utilization of renewable energy.”<sup>125</sup> The development of special funds is arranged by the Central Financial Agenda.<sup>126</sup> The measures issued by the Ministry of Finance may fulfill the special funds system, and the State utilizes the special funds to support

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122. See Interim Measures for the Imposition and Use of Renewable Energy Development Funds, *supra* note 65.

123. See The Renewable Energy Law of the People’s Republic of China, *supra* note 6, at art. 24, 26.

124. *Id.* at art. 24.

125. See Interim Measures of the Ministry of Finance for the Administration of the Special Fund for the Development of Renewable Energy, *supra* note 45.

126. *Id.*

renewable energy projects through grants and loan interest subsidies.<sup>127</sup> Grants are mainly used for projects with fewer profits and more public benefits; loan interest subsidies are used for projects listed in the directive catalogue on renewable energy industrial development in conformity with credit conditions.<sup>128</sup> Moreover, “[t]he special funds shall primarily be used to support the following activities”:

1. scientific and technological research, establishment of standards, and demonstration projects for the development and utilization of renewable energy;
2. renewable energy utilization projects providing energy for daily use in rural and ranching areas;
3. the construction of renewable energy independent power systems in remote areas and islands;
4. surveys and assessments of renewable energy resources and the construction of the relevant information systems;
5. the promotion of indigenous production of equipment for the development and utilization of renewable energy.<sup>129</sup>

However, because the special funds system is uncertain on sources of funds, quotas, and applicable scope, the amended *Renewable Energy Law* set up the renewable energy development fund on the basis of integrating additional income and special funds for the development of renewable energy power generation.<sup>130</sup>

In addition, China has a number of relevant tax discounts and subsidiary policies. As to the VAT value-added tax policy, wind power generators enforce the policy with 50% paid back.<sup>131</sup> As to the enterprise income tax, where a new project is approved after January 1, 2008 for hydropower, nuclear power, wind power, ocean energy power, solar energy power, or geothermal power, and the project conforms to the conditions in the *Catalogue on Enterprise Income Tax Preference for Public*

127. *Id.* at art. 17.

128. *Id.*

129. *Id.*

130. Decision on Amendment to the Renewable Energy Law, *supra* note 53.

131. Guan Yu Zi Yuan Zong He Li Yong Ji Qi Ta Chan Ping Zeng Zhi Shui Zheng Ce De Tong Zhi (关于资源综合利用及其他产品增值税政策的通知) [Circular on VAT Policy on the Comprehensive Utilization of Resources and Other Products] (promulgated by the Ministry of Fin., State Admin. of Taxation, Dec. 9, 2008) (China), *available at* [http://www.chinaacc.com/new/63\\_67\\_/2008\\_12\\_15\\_wa2390254295121800215345.shtml](http://www.chinaacc.com/new/63_67_/2008_12_15_wa2390254295121800215345.shtml).

*Infrastructure Projects*, the enterprise may enjoy a preferential income tax treatment of a “three year exemption and three year reduction by half.”<sup>132</sup>

### III. PROBLEMS AND THE FUTURE OF POLICIES AND LAWS ON RENEWABLE ENERGY IN CHINA

The *Renewable Energy Law* and its relevant policies achieved considerable results, such as promoting the deployment of wind, hydropower, and other renewable energy generation. However, we should be aware that there are still imperfections, and it will be necessary to further modify, supplement, and perfect the *Renewable Energy Law* and its relevant policies.

#### *A. Legislative Aim*

When looking back to the history of the *Renewable Energy Law*'s development, it can be concluded that renewable energy developed in the context of the international community becoming increasingly concerned about addressing climate change. As a result, the *Renewable Energy Law* should specifically state that responding to climate change is the primary reason for developing and utilizing renewable energy. This would have two advantages. First, it would show China's commitment to addressing climate change and that actual steps are being taken towards that goal. Second, it is advisable for Chinese law amendments to take into account the latest trends in addressing climate change, which would be favorable for the *Renewable Energy Law* closely connected to climate change. For example, the distributive power generation by renewable energy in Germany and Spain is a growing trend in renewable energy generation development.<sup>133</sup> In spite of its economic benefits being lower than on-grid generation on a large scale, distributive power generation enjoys advantages such as simply being on a smaller scale, having fewer effects on surroundings, and not requiring extra

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132. Zhong Hua Ren Min Gong He Guo Qi Ye Suo DeShui Fa Shi Shi Tiao Li (中华人民共和国企业所得税法实施条例) [Regulation on the Implementation of the Enterprise Income Tax Law of the People's Republic of China] (promulgated by the St. Council, effective Jan. 1, 2008) at art. 87, available at <http://www.mof.gov.cn/pub/shuizhengsi/zhengwuxinxi/zhengcefabu/200809/P020080923352994565331.pdf>.

133. Fen Bu Shi Fa Dian Jiang Huo Zheng Ce Li Ting, Duo Gong Si Bu Ju (分布式发电将获政策力挺, 多公司布局) [Policy Will Incline to Distributing Power Generation and Many Companies Want to Grab a Piece of Cake] XINHUA NET (2008), available at [http://news.xinhuanet.com/finance/2011-04/21/c\\_121331021.htm](http://news.xinhuanet.com/finance/2011-04/21/c_121331021.htm).

fees for connection, which are of vital importance to addressing climate change. Such a trend should be taken into account in Chinese renewable energy law amendments in the future.

When the *Renewable Energy Law* was amended in 2009, the Legislature missed an opportunity to declare responding to climate change as the legislative objective.

### *B. The Portfolio Standard (Quota System) for Renewable Energy Power Generation*

The portfolio standard for renewable energy power generation refers to a compulsory provision for the proportion of renewable energy power generation within the total power quantity for a given period. This is also called the “compulsory market share objective” for renewable energy power generation.<sup>134</sup> There is no provision concerning the quota index of renewable energy power generation in the *Renewable Energy Law* of 2005.<sup>135</sup> After the implementation of the *Renewable Energy Law*, in 2007 the *Medium and Long Term Development Plan for Renewable Energy* established a compulsory market share objective of non-hydropower renewable energy. The market share objective mandates that by 2010 and 2020, the proportion of non-hydropower renewable energy entering the total grid power quantity in areas covered by the large grid must reach over 1% and 3%, respectively. For the investor whose total equity installed capacity exceeds 5 million kilowatts, its proportion of non-hydropower renewable energy should account for over 3% and 8%, respectively.<sup>136</sup> The *Renewable Energy Law*, as amended in 2009, states that:

[T]he national energy authority, together with the national power supervisory institution and financial authority of the State Council, shall determine the proportion of renewable energy power in the total power quantity during the planning period, and formulate the specific measures for grid enterprises giving priority to dispatch and purchasing full renewable energy power in accordance with the nationwide planning for development and utilization of renewable energy.<sup>137</sup>

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134. Medium and Long Term Development Plan for Renewable Energy in China, *supra* note 87.

135. The Renewable Energy Law of the People’s Republic of China, *supra* note 6.

136. Medium and Long Term Development Plan for Renewable Energy in China, *supra* note 87.

137. The Renewable Energy Law of the People’s Republic of China, *supra* note 6, at art. 14.

This provision is generally interpreted as the legislative basis for carrying out the renewable energy quota system. Additionally, the *Decision on Accelerating to Foster and Develop Strategic Burgeoning Industries* issued by the State Council in October 2010, clearly “implement[ed] a new energy quota system.”<sup>138</sup>

The provision in Article 14 of the *Renewable Energy Law* may provide the basis for the implementation of a renewable energy quota system, but it does not require one. The determination of “the proportion of renewable energy power in the total power quantity” also determines the total volume objective of renewable power generation.<sup>139</sup> This is no different than the total volume objective system for renewable energy. In order to achieve the total volume objective or quota index for renewable energy power generation, a quota system or fixed power price system may be chosen.<sup>140</sup> However, if the quota system is chosen, China must pay attention to possible conflicts with the fixed power price system.

In many countries, renewable energy power generation objectives are generally achieved by either a fixed power price or quota system. Therefore, countries must make a choice between these two systems. For example, Germany uses a classified fixed price system, while the United Kingdom and United States use quota systems. In the fixed power price system, the state grants the enterprise fixed profit return in the form of subsidies in order to enable the enterprise to voluntarily carry out the necessary actions.<sup>141</sup> But a quota system is not the same, because it forces the enterprise to carry out the necessary actions based on a compulsory directive or administrative order. The enterprise may meet the quota through the market (for instance, by purchasing renewable energy) or it must create the renewable energy itself, and the costs of performing the task are borne by the enterprise without national compensation. The government is involved in both systems; the difference is that the fixed power price system is a “carrot,” but a quota system is a “stick.” That is to say, because the price is fixed under the fixed power price system, enterprises can receive a return on their investments without market competition. But under

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138. Guo Wu Yuan Guan Yu Jia Kuai Pei Yu He Fa Zhan Zhan Lve Xin Xing Chan Ye De Jue Ding (国务院关于加快培育和发展战略性新兴产业的决定) [Decision of the State Council on Accelerating the Fostering and Development of Strategic Emerging Industries] (promulgated by the St. Council, Sept. 8, 2010) (China), available at <http://www.lawinfochina.com/display.aspx?lib=law&id=8570>.

139. Decision on Amendment to the Renewable Energy Law, *supra* note 53.

140. *See id.* (The Renewable Energy Law does not specify how the total volume objective is to be met.).

141. *Id.* at art. 19–23.

the quota system, enterprises are compelled to take on certain responsibilities, and if an enterprise fails to do so, the State will penalize it.<sup>142</sup>

An advantage of the quota system is that the enterprises are given the option to choose how to meet the quota. For example, the enterprise may invest and construct qualifying generation to meet the quota, or purchase qualifying generation through market transactions. The enterprise will then choose the most efficient means with the lowest costs to meet the quota requirement. Under the background of a quota system, however, the liabilities of enterprises are undoubtedly heavier.<sup>143</sup> The *Renewable Energy Law* adopted the fixed power price system in order to develop and attract investment in renewable energy as soon as possible.<sup>144</sup> Such a system has proven fruitful in practice. Drawing on real-life experiences, power generators' enthusiasm to invest in renewable energy remains high under the fixed power price system, and therefore implementing a compulsory quota system appears to be unnecessary. If China establishes a quota system without undoing the fixed price system, conflicts are certain to arise between the two.

### *C. Full Guarantee Purchase Liability of Grid Enterprise and Quota System*

The *Renewable Energy Law* of 2005 provided that grid enterprises must purchase 100% of power generated by renewable energy plants, or compensate the renewable energy generator for any economic loss derived from power not being purchased by the grid company.<sup>145</sup> SERC shall order the grid companies to correct the harm within a stipulated period of time. In case of refusal to make a correction, a fine of not more than 200% of the economic loss of the renewable power generation enterprises shall be imposed.<sup>146</sup>

Specifically, the Regulatory Measures for Grid Enterprises' Full Purchase of Renewable Energy Electricity stipulates:

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142. Because China is drafting the *Measures for the Administration of Renewable Energy Power Generation Quota*, it is unclear how to penalize an enterprise that does not meet the quota.

143. N.H. VAN DER LINDEN, M.A. UYTERLINDE, C. VROLIJK ET AL., REVIEW OF INTERNATIONAL EXPERIENCE WITH RENEWABLE ENERGY OBLIGATION SUPPORT MECHANISMS 10 (2005), available at <http://eetd.lbl.gov/EA/EMP/reports/57666.pdf>.

144. See The Renewable Energy Law of the People's Republic of China, *supra* note 6, at art. 19.

145. *Id.* at art. 29.

146. *Id.*

Where a grid enterprise or electricity dispatching entity commits any of the following acts, causing economic loss to an enterprise generating renewable energy electricity, the grid enterprise shall be liable for compensation, and the electricity regulatory authorities shall order the grid enterprise to make correction within a certain time limit; and in case of refusal to make correction, the electricity regulatory authorities may impose a fine of not more than 200 percent of economic loss incurred by the enterprise generating renewable energy electricity:

6. failing to construct, or failing to construct in a timely manner, the grid-connection works in a renewable energy electricity generation project;
7. refusing or obstructing the conclusion of an electricity purchase and sales contract or a grid-connection dispatching agreement with an enterprise generating renewable energy electricity;
8. failing to provide, or failing to provide in a timely manner, grid-connection services for renewable energy electricity;
9. failing to give priority to renewable energy electricity during dispatch; or
10. otherwise causing a failure of full purchase of renewable energy electricity.

The grid enterprise shall, within 15 days from the date of the electricity regulatory authorities' confirmation of economic loss, compensate the enterprise generating renewable energy electricity.<sup>147</sup>

This stipulation has some big problems. In theory, if the grid enterprise refuses to sign contracts according to the full guarantee purchase system, SERC will issue an order for remedial actions and impose a fine according

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147. Dian Wang Qi Ye Quan E Shou Gou Ke Zai Sheng Neng Yuan Dian Liang Jian Guan Ban Fa (电网企业全额收购可再生能源电量监管办法) [Regulatory Measures for Grid Enterprises' Full Purchase of Renewable Energy Electricity] (promulgated by the St. Elec. Regulatory Comm'n, July 25, 2007, effective Sept. 1, 2007) at art. 20, available at [http://www.serc.gov.cn/zwgk/jggz/200802/t20080220\\_4704.htm](http://www.serc.gov.cn/zwgk/jggz/200802/t20080220_4704.htm).

to law. But the grid enterprise and power generators are equal civil subjects so that when the grid enterprise does not purchase the renewable electric power according to the agreement, it must bear the liability for breach. Therefore, the power generators should file the charge in court to get the compensation for the loss and the court will determine the amount of compensation according to the related stipulation of the contract law. Then the judgment will be executed by the executive authority of the court. SERC cannot stipulate under which situations the grid enterprise must pay the electricity generator as well as the compensation time and form. In practice, after promulgating the *Renewable Energy Law*, it has been very common for the renewable energy power generators to not be able to connect to the grid. However, SERC has not accepted this reality. In other words, if all renewable energy power generators seek redress under this provision of Article 29 of the *Renewable Energy Law*, SERC will not have enough manpower and funding to undertake this work. In short, this system is impractical.

Therefore, the full purchase system stipulated in the *Renewable Energy Law* of 2005 has fundamental problems. SERC attempted to request that grid enterprises purchase all the renewable energy power on a “case by case” basis. But the full purchase system does not have a solid foundation in theory and practice. Conversely, according to Article 14 of the *Renewable Energy Law* of 2009, which stipulated that China prepare to establish the renewable energy purchase quota system, if China executed this system, SERC just needs to inspect the grid enterprise regarding whether to complete the quota, but not to intervene in the contractual relationship between the grid enterprise and renewable energy power generators.<sup>148</sup> As long as the responsibility of the quota system is strict enough, the grid enterprise will adopt each method necessary to meet the quota. Therefore, the quota is more practical than the full purchase system.

#### *D. Design of Quota System*

Assuming that the quota system is chosen to meet the total volume objective and guarantee full purchase of renewable energy power, it will be crucial to establish the specific type of quota system. Foreign experience in implementing quota systems has shown the need for structure and reliability. There is no federal quota system in the United States, but there are compulsory quota indexes for renewable energy in twenty-nine states

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148. The Renewable Energy Law of the People’s Republic of China, *supra* note 6, at art. 14.

and Washington, D.C.<sup>149</sup> The policies in each state have obvious differences, but there are some common requirements such as the bases of renewable energy certificate transactions, specific provisions on the entity undertaking the quota liability, types of qualified renewable energy, transaction contracts and supervision, and penalties, so as to seek the implementation of compulsory shares through market mechanisms.<sup>150</sup> Additionally, six European Union member states carry out the quota system, including the United Kingdom and Sweden. These countries have requirements similar to the United States.<sup>151</sup>

For China, initially, a tradable “green certificate” system should be established. Thereafter, the state should make specific provisions for obtaining the green certificate, defining its effective period, regulating the body that undertakes a quota liability, and trading certificates. The government should also establish a method to supervise the system and impose penalties.<sup>152</sup>

The National Energy Authority is researching and drafting the *Measures for the Administration of Renewable Energy Power Generation Quota*, but there are disputes over basic questions, such as which bodies will be liable under the quota system, whether the quota is based on transactions or simple administrative orders, and what is the relationship between the quota system and the fixed power price system.<sup>153</sup> When China sets up the quota system for renewable energy power generation, it should reference international experiences and incorporate established practices into the country’s policies. In sum, a quota system should be based on the trade of green certificates or renewable energy certificates, rather than by simple administrative order. China also needs to consider its national situation and current systems when designing the specific systems. Issues to consider include the current status of power market reform in China, the current situation and associated problems of renewable energy development

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149. RYAN WISER, U.S. EXPERIENCE AND LESSONS ON RE QUOTA SYSTEMS (RPS) 5 (2010), available at <http://www.efchina.org/FReports.do?act=detail&id=299> (follow “US Experience and Lessons on RE Quota Systems” hyperlink).

150. *Id.* at 6.

151. DR. OLE LANGNISS, EUROPEAN EXPERIENCE AND LESSONS ON RE QUOTA SYSTEM 3 (2010), available at <http://www.efchina.org/FReports.do?act=detail&id=299> (follow “European Experience and Lessons on RE Quota System” hyperlink).

152. *Id.* at 4.

153. Jia Neng Yuan Bu Men Zheng Yan Jiu Zhi Ding<Ke Zai Sheng Neng Yuan Dian Li Pei E Guan Li Ban Fa (国家能源部门正研究制定<可再生能源电力配额管理办法>Guo) [National Energy Authority is Researching and Drafting *Measures for the Administration of Renewable Energy Power Generation Quota*] CHINA REPORT NET, Mar. 23, 2012, available at <http://zhengce.chinabaogao.com/nengyuan/2012/022312H622012.html>.

in China, and the foundational work needed to implement a renewable energy quota system. The specific design for the quota system should include factors such as a quota index, the body undertaking the liability, qualified renewable energy power, the acquisition of renewable energy certificates, supervision of transactions, and punishment of illegal acts.

*E. The Legal Mechanism of Economic Incentive, Renewable Energy Technology, and the Legal Mechanism of Addressing Climate Change*

At the moment, the role of climate change in China's renewable energy legal system is mainly macroscopic. However, along with the advancement of addressing climate change, though very slow, a set of performable legal mechanisms will finally be established. Therefore, in the long run, laws and policies on renewable energy will definitely have to consider the role of this legal mechanism at the micro level. On the one hand, Chinese renewable energy law must obey the rules of the legal mechanism (like how the present Chinese policy of subsidizing renewable energy must follow the rules of WTO). On the other hand, Chinese renewable energy law also needs to study the legal mechanism to perfect its domestic renewable energy legal system.

Nowadays, China is backward in funds and technology, which is the main point of present climate change negotiations. As a result, China must fully use the related mechanisms of funding aid and technology transfer in the legal mechanism in the future. This will help to attract funds and import techniques to speed up the development of the Chinese renewable energy industry. This will be one of the most important challenges that Chinese renewable energy law takes up in the future.

#### IV. CONCLUSION

China has advanced renewable energy development significantly in recent years, at least in part due to climate change. The examination of the *Renewable Energy Law* illustrates how China has attempted to promote renewable energy through law and supporting policies. Although China has had much success in some areas, many barriers to realizing the full potential of renewable energy remain.

