

LYNETTE H. ONG

## The Apparent “Paradox” in China’s Climate Policies

### *Weak International Commitment on Emissions Reduction and Aggressive Renewable Energy Policy*

#### ABSTRACT

China, the world’s largest energy consumer and greenhouse gas emitter, appears to have contradictory climate policies. While aggressively pursuing a renewable energy policy, Beijing is weak on a commitment to emissions reduction. The “paradox” can be reconciled on the basis of China’s priority for growth, which is critical in ensuring the Communist Party’s grip on power.

**KEYWORDS:** climate change, renewable energy, environment, 12th Five-Year Plan, China

#### INTRODUCTION

With its rapidly expanding economy, China is now the world’s largest emitter of greenhouse gases and biggest energy consumer, according to the International Energy Agency (IEA). China’s climate policies are increasingly scrutinized, for a host of economic and environmental reasons. The advanced industrialized countries are concerned that given the sheer size of China’s contribution to greenhouse gases, their own efforts in reducing emissions will be futile without a binding commitment from China. These countries are also apprehensive that China will derive unfair economic advantage from its lack of commitment to cut emissions,<sup>1</sup> amid intensifying global economic rivalry and rising costs from carbon emissions for energy-intensive industries in the EU. Recently, China has been accused

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1. Carmen Richerzhagen and Imme Scholz, “China’s Capacities for Mitigating Climate Change,” *World Development* 36:2 (February 2008), p. 1.

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of discriminating against foreign competitors within the renewable energy sector and of violating the rules of the World Trade Organization (WTO). The United Steelworkers union, among other organizations, has filed complaints against China's policies on the clean-technology sector. Charges made by U.S. clean-energy manufacturers against alleged violations of intellectual property rights by rival Chinese manufacturers further highlight the sensitivity of the renewable energy sector.

China's climate-relevant policies appear somehow paradoxical. On the one hand, the country has steadfastly refused to commit to any internationally binding emissions reduction target. Its action—or lack thereof—was blamed for the failure of the Copenhagen Climate Change Summit in 2009. At the COP15, China's behavior was criticized as having been “calculated to frustrate progress,”<sup>2</sup> although its reputation was somewhat redeemed at the Cancun summit the following year owing to improved public relations and recent energy-efficiency improvement efforts. Overall, China, with its lack of legally binding commitments, is widely perceived to be a key stumbling block in the global fight against climate change. On the other hand, China has invested enormously and made great strides in renewable energy, although this sector accounts for only about 10% of energy generation in China compared to coal. Over the past few years, the country has become the world's leading manufacturer of solar panels, owner of the world's largest network of hydropower stations, and a major global player in wind turbine industries. What explains these seemingly paradoxical policies?

This paper examines three aspects of China's climate change-related policies and politics—its energy efficiency policies, institutional arrangements on climate change, and renewable energy policies—and concludes that they converge in the pursuit of economic growth. Economic development remains the Chinese leadership's foremost priority. Climate change falls under the rubric of sustainable development in China—it is not a stand-alone issue, nor is it treated *merely* as an environmental concern. The measures that China has undertaken historically, including energy efficiency and conservation as well as population control, were not aimed at reducing emissions growth.

2. Peter Christoff, “Cold Climate in Copenhagen: China and the United States at COP15,” *Environmental Politics* 19:4 (2010), p. 639; Mark Lynas, “How do I know China wrecked the Copenhagen deal? I was in the room,” *The Guardian*, December 22, 2009, <<http://www.guardian.co.uk/environment/2009/dec/22/copenhagen-climate-change-mark-lynas>>; Andrew C. Revkin and John M. Broder, “A Grudging Accord in Climate Talks,” *New York Times*, December 20, 2009, *Science/Environment*, <<http://www.nytimes.com/2009/12/20/science/earth/20accord.html>>.

Rather, they were designed to meet domestic imperatives such as economic development, poverty alleviation, and pollution abatement.

Since the mid-2000s, China has set itself energy targets, although these are intensity-based targets—tied to a ratio of the amount of energy or greenhouse gas emissions per unit of economic output—rather than absolute ones. Meeting the intensity-based targets, which are indexed to economic growth, does not curb economic production. The ability to deliver continuous economic prosperity is important in ensuring the Chinese Communist Party's (CCP) grip on power. At the same time, the Chinese leadership considers actions to nurture the climate worthwhile because environmental degradation may also help weaken the Party's legitimacy via environment-related social unrest and adverse domestic health impacts. It is through this prism that one should view the issue of climate change in China.<sup>3</sup>

New renewable energy, energy conservation and environmental protection, and clean-energy vehicles are among the seven “strategic emerging industries” singled out for development in the 12th Five-Year Plan (2011–15), all part of China's efforts to restructure its economic model away from low-end manufacturing.<sup>4</sup> The government aims to raise these industries' contribution to gross domestic product (GDP) from 5% currently to 8% by 2015 and 15% by 2020. It has offered generous subsidies and low-interest loans to jump-start and stimulate growth in these industries. The overall policy objective is to promote indigenous innovation and strengthen “national champions” as part of China's grand economic growth strategy.<sup>5</sup> The recent spate of energy efficiency policies is also primarily aimed at improving energy security to ensure continuous economic growth. Climate change mitigation is a by-product of the energy and renewable energy policies.

The growth-centric priority is reflected in, and a result of, the institutional arrangement that formulates climate policy. All climate-relevant policies, including those pertaining to international climate negotiations, traditional energy, and renewable energy, are under the purview of the National Development and Reform Commission (NDRC), the powerful state planning agency

3. Given the fast-moving nature of environmental policy landscape in China and internationally, it should be qualified that this paper focuses on the events and policies up to the Copenhagen Summit.

4. APCO Worldwide, *China's 12th Five-Year Plan: How It Actually Works and What's in Store for the Next Five Years*, December 10, 2010, <[www.apcoworldwide.com/content/PDFs/Chinas\\_12th\\_Five-Year\\_Plan.pdf](http://www.apcoworldwide.com/content/PDFs/Chinas_12th_Five-Year_Plan.pdf)>.

5. *Ibid.*

responsible for formulating policies in numerous areas related to economic development. Incessant economic growth is critical for legitimizing the CCP's rule and for alleviating the country's numerous political and social woes, such as rising social protests, a growing rural-urban divide, and a lack of jobs for the large pool of migrant workers and university graduates.

This paper is divided into five sections. We start by explaining the arguments China advances to justify its international position, such as its development priority and the "equity" principle (Section 1). We then analyze the country's climate change politics and policy institutions, examining how the institutional arrangement reflects China's political priorities and concerns (Section 2). This is followed by an analysis of the growth-ensuring energy efficiency and security policies (Section 3). Next, we examine how the renewable energy sector has been promoted primarily as a strategic growth industry, rather than as a channel for curbing carbon emissions (Section 4). The last part (Section 5) concludes and draws normative implications for how the international community should be dealing with China.

#### CHINA'S ARGUMENTS IN JUSTIFYING ITS POSITION

The 1972 U.N. Conference on the Human Environment (UNCHE) in Stockholm officially marked the beginning of China's participation in international environmental negotiations. However, China was a rather "laggard participant" at the time, with an uncooperative attitude toward treaty obligations.<sup>6</sup> In 1988, the government established the National Climate Change Co-ordination Group, an inter-agency group that coordinated and formulated policies on climate change. With the Beijing Ministerial Declaration on the Environment and Development made in 1991, Beijing declared its resistance to any external pressure or diplomatic initiative deemed incompatible with China's level of development. This is a position that it has held until today. Notwithstanding that, China has become a more active participant in international climate change negotiations since the 1990s. It ratified the U.N. Framework Convention on Climate Change (UNFCCC) in 1992 and 2002. The convention, which identifies China as a non-Annex I developing country, imposes no obligations to make legally binding commitments

6. Lester Ross, "China and Environmental Protection," in *China Joins the World: Progress and Prospects*, ed. Elizabeth Economy and Michel Oksenberg (Washington, D.C.: Council on Foreign Relations, 1998), pp. 296–325.

on emissions reductions verifiable by an independent body.<sup>7</sup> (Non-Annex I parties are mostly developing countries recognized by the U.N. Convention as being especially vulnerable to the adverse impacts of climate change, the special needs of which the Convention promises to answer.)

Several core principles characterize China's international position on climate change. The basic premise is that the developed countries must bear the most responsibility in mitigating climate change. China adopts a "common but differentiated" approach to climate change mitigation. It acknowledges that all nations have a "common" responsibility toward a sustainable environment. But the obligations of the developing countries should be "differentiated" from those of the developed nations—the latter should take the lead through domestic action. China also maintains that any international commitment by developing countries is voluntary or non-legally binding, and that funding and technological assistance provided by developed countries is a *sine qua non* for developing countries to effectively mitigate and adapt to climate change.<sup>8</sup>

China's main contention is that it is still a developing country. Thanks to economic reforms launched in the late 1970s by Deng Xiaoping, the Chinese economy has grown tremendously, surpassing Japan as the world's second largest economy in 2010. Nevertheless, China ranks only 133rd in the world in per capita income.<sup>9</sup> Although the economic reforms have transformed the lives of its citizens, 36% of its population still lives in poverty, earning less than US\$2 a day.<sup>10</sup> Millions of Chinese still lack access to clean water, electricity, and other basic infrastructure that the industrialized world takes for granted. The emissions-intensive industries in China such as cement and steel have grown rapidly in recent years, fueling swift development in industries and infrastructure resulting from the country's growing affluence. China, along with most other developing countries, perceives a cap on emissions to be a constraint on economic growth. China argues that with its vast population

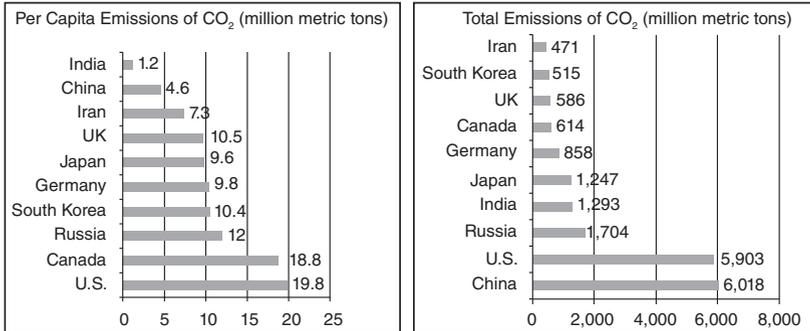
7. Joanna I. Lewis, "China's Strategic Priorities in International Climate Change Negotiations," *Washington Quarterly* 31:1 (December 4, 2007), pp. 155–74.

8. NDRC, "Implementation of the Bali Roadmap: China's Position on the Copenhagen Climate Change Conference," May 20, 2009, <[http://en.ndrc.gov.cn/newsrelease/t20090521\\_280382.htm](http://en.ndrc.gov.cn/newsrelease/t20090521_280382.htm)>, accessed August 8, 2010. That said, China has softened this stance since the Copenhagen Summit.

9. U.S. Central Intelligence Agency, "East and Southeast Asia: China," September 30, 2009, <<https://www.cia.gov/library/publications/the-world-factbook/geos/ch.html>>, accessed January 3, 2011.

10. World Bank Poverty head count at US\$2 a day. The poverty head count at the national poverty line, which has a much lower threshold, is 2%.

FIGURE 1. Top Ten Global Carbon Emitters



SOURCE: Energy Information Administration (2008); *China FAQs* (2009).

and existing poverty rate, it needs to place economic development as a top priority—and the industrialized countries must allow it the space to grow. Capitalizing on the differing levels of development, Chinese negotiators have differentiated between “luxury emissions” and “survival emissions,” arguing that the developed nations ought to adjust their consumption patterns and lifestyles to allow the developing countries to feed their populations.<sup>11</sup>

Notwithstanding that, a growing number of industrialized and developing countries alike no longer perceive China as a less developed nation, and they are pushing China to take on more responsibility accordingly. The developing countries that hold such a view include the island states susceptible to natural disasters and the poorer nations among the Group of 77.<sup>12</sup> China is cognizant of that, but has been steadfast that it should be treated as a developing country in terms of emissions reduction responsibility.<sup>13</sup>

China also espouses the “equity” principle, to which there are three components. First, China has always stressed that countries should pay attention to per capita, *not* total, emissions. On a per capita basis, its CO<sub>2</sub> emission is one-quarter that of the U.S., while being on par with the world average, as illustrated in Figure 1. This looks far more innocuous than the tally of total

11. Gorild Heggelund, “China’s Climate Change Policy: Domestic and International Developments,” *Asian Perspective* 31 (2007), p. 176.

12. G-77 is a loose coalition of developing nations at the U.N. brought together by the pursuit of common objectives pertinent to the developing world.

13. Haibin Zhang, “Guanyu Gebenhangen Qihou Bianhua Dahui zhihou Guoji Qihou Hezuo de Ruogan Sikao” [Reflections on post-Copenhagen international climate change cooperation], *Guoji jingji pinglun* [International Economic Review], no. 4 (2010), pp. 102–13, 5.

emissions, which clearly places China ahead of the rest of the world, including the U.S.

Second, China argues that historical or cumulative emissions by the industrialized countries matter more than current emissions because greenhouse gases are trapped in the atmosphere for 200 years. The logical conclusion of the argument is that since the U.S., Europe, and the other Organization for Economic Cooperation and Development (OECD) countries have attained a high level of development and contributed enormously to greenhouse gases in the atmosphere, they should play a leadership role in mitigating climate change. This is the rationale behind the position of “common but differentiated responsibility”: as China is industrializing long after the developed countries did, and has produced fewer emissions historically, the industrialized world must take the lead in paying for the bulk of mitigation and adaptation costs.

A related argument advanced by the Chinese negotiators pertains to the economic capacity of nations in combating global warming, regardless of their responsibilities. China argues that by having greater financial capacity and better technology, the developed countries should provide financial and technical assistance to the developing nations to help them realize the common goal, irrespective of their level of responsibility.<sup>14</sup>

## CLIMATE CHANGE POLITICS AND POLICY INSTITUTIONS

The underlying political logic of the growth priority is that the CCP relies on incessant growth to maintain its grip on power. Since the launch of liberal economic reform in the late 1970s, the Party could no longer rely on Communist ideology as the source of its ruling legitimacy.<sup>15</sup> Given rising societal aspirations, and growing social dislocation and discontent, the CCP must continue to deliver economic prosperity to justify its rule. China’s approximately 90,000 incidents of social protests annually—some triggered by environmental issues—are persistent reminders to the Communist regime of its fragile power.<sup>16</sup>

14. Idem, “Zhongguo yu Guoji Qihou Bianhua Tanpan” [China and international climate change talks], *Guoji zhengzhi yanjiu* [Research in Global Politics] 1 (2007), p. 33.

15. K. G. Lieberthal, *Governing China: From Revolution Through Reform*, vol. 2 (New York: W. W. Norton & Co., 2004); K. G. Lieberthal and D. M. Lampton, *Bureaucracy, Politics, and Decision-Making in Post-Mao China* (Berkeley: University of California Press, 1992).

16. Susan L. Shirk, *China: Fragile Superpower: How China’s Internal Politics Could Derail Its Peaceful Rise to Power* (New York: Oxford University Press, 2007).

Sovereignty, the right of a country to determine its own development path, is another significant political consideration in China's international climate change negotiations. The Chinese government perceives any imposition of an emissions cap by industrialized nations as an infringement of its sovereign right to pursue development. Some nationalistic voices even interpret this notion as a Western conspiracy to contain China's meteoric rise. Notwithstanding that, some liberal-minded Chinese academics have called for flexibility (*linghuo*) in its international position on climate change, provided that the position is based on reciprocity and non-coercion.<sup>17</sup>

The framing of climate change as an economic development issue is reflected in the institutional arrangements. During the 1980s and early 1990s, the State Meteorological Administration took on the central role of policy advisor in international climate change negotiations. In 1998, this role was transferred to the State Development and Planning Commission, which was renamed the NDRC in 2003. This heralded the beginning of the central leadership's management of climate change as a development, rather than a scientific, issue. Because the NDRC, being a super-ministry, is a far more powerful bureaucratic agency than the State Meteorological Administration, the transfer also indicated that climate change was being shifted to a higher political priority.<sup>18</sup>

The National Climate Change, Energy Efficiency, and Emission Reduction Leading Small Group (hereafter, the Climate Change and Energy LSG), established in 2007, is the highest climate policy making organ in China.<sup>19</sup> Issues-focused LSGs (*lingdao xiaozu*) are important policy making bodies in China that act as coordinators for relevant government agencies and set broad guidelines and directions for policies to follow. The Climate Change and Energy LSG is currently led by outgoing Premier Wen Jiabao. However, owing to its sheer size, the LSG is not involved in actual policy formulation; most of the work is carried out by its secretariat at the NDRC. The NDRC is a super-ministry responsible for a whole range of policy areas related to economic development, including energy, climate change, regional development, rural development,

17. Haibin Zhang, "Lun Guoji Huanjing Baohu dui Guojia Zhuquan de Yingxiang" [The implications of international environmental protection on national sovereignty], *Ouzhou Yanjiu* [European Research] 3 (2007), pp. 74–75; Hu Angang, "Quanqiu Qihou Bianhua yu Zhongguo Lüse Fazhan" [Climate change and China's green development], *Zhonggong Zhongyang Dangxiao Xuebao* [Journal of CCP Central Committee Party School] 2 (2010).

18. Lewis, "China's Strategic Priorities in International Climate Change Negotiations," p. 158.

19. In Chinese, it is *Guojia yingdai qihou bianhua ji jieneng jianpai gongzuo lingdao xiaozu*.

high-tech industries, health care reform, price supervision, etc. It also has the important responsibility of preparing five-year plans for economic and social development. Since the mission of the NDRC is to “formulate and implement strategies of national economic and social development” and to “put forward targets and policies concerning the development of the national economy,”<sup>20</sup> it is exceedingly clear that climate change policy in China is subsumed within the broader objective of economic development.

The Climate Change Department (Qihou Bianhua Si) at the NDRC was established in 2008 to lead and coordinate climate-change policy at a national level. It formulates and implements domestic climate policy and international conventions, coordinating with various domestic ministries and relevant international parties in global climate-change negotiations. It undertakes work assigned by the Climate Change LSG and implements work relating to the Clean Development Mechanism (CDM).<sup>21</sup> Similar offices exist within provincial NDRCs to handle leadership and coordination at the regional level. The offices are also in charge of implementing the energy-conservation and carbon-reduction targets set in the five-year plans.<sup>22</sup>

The NDRC also serves as the main agency responsible for developing all energy policies, including those related to renewable energy. It is an important node for coordinating all energy-conservation and emissions-reduction efforts. This bureaucratic arrangement reinforces the point that energy—much like climate change—is not managed politically as a stand-alone issue. They both fall within the grand rubric of development, which is reflected in the extensive bureaucratic cooperation between energy and climate change policies.

Meanwhile, the National Energy Administration (Nengyuan Ju, NEA) at the NDRC is in charge of formulating and implementing energy and

20. NDRC's English website is at <<http://en.ndrc.gov.cn/mfndrc/default.htm>>, accessed August 9, 2010. Even though the NDRC has taken on social development responsibilities, its primary role remains one of promoting development, deepening economic reforms, and opening to the outside world, as stated on the agency's website.

21. The department's website is at <[http://en.ndrc.gov.cn/newsrelease/t20090521\\_280382.htm](http://en.ndrc.gov.cn/newsrelease/t20090521_280382.htm)>, accessed August 9, 2010. The CDM allows a country under the Kyoto Protocol to implement an emission-reduction project in developing countries. Such projects can earn saleable certified emission reduction (CER) credits, equivalent to a ton of CO<sub>2</sub>, which counts toward meeting the Kyoto Protocol.

22. Jianfeng Xiong, “Local NDRCs to Set up Climate Change Office,” *Dongfangwang* [Eastday.com], January 3, 2010, <<http://news.163.com/10/0103/12/5S3R89TK000125LI.html>>; Dezhuang Xiong and Jia Mao, “Provincial NDRCs to Set up Climate Change Offices,” *Chengdu Wanbao* [Chengdu Evening News], July 24, 2010, <<http://news.163.com/10/0724/07/6CBDMFLU00014AED.html>>.

renewable energy policies and overseeing foreign cooperation in the energy sector.<sup>23</sup> Despite being a vice-ministerial body, a rank above the NDRC's Energy Bureau that it replaced, the body still operates below the ministerial-ranked state-owned oil companies and state power grids whose activities it is supposed to coordinate. Consequently, it lacks the authority to fulfill its many mandates. The NEA also lacks the autonomy to set electricity prices, which remains the purview of the NDRC.<sup>24</sup>

Despite the existence of these coordinating bodies, the policy making process in climate change and energy remains highly fragmented. Some have argued that bureaucratic fragmentation is an institutional feature of policy processes in China.<sup>25</sup> There is no single institution, such as a ministry of energy or climate change, which has absolute authority to coordinate the interests and policies of various stakeholders. The fact that the coordinating body sometimes exists *below* the coordinating target in terms of bureaucratic ranking makes its task more arduous. For instance, as a vice-ministerial body, the NEA lacks the authority to effectively coordinate or mediate the interests of ministries, commissions, and powerful state-owned energy companies.<sup>26</sup> One consequence is that policy articulation sometimes appears uncoordinated, as with the behavior of China's delegation at the 2009 Copenhagen climate summit.

The number of bureaucracies involved in climate change and international negotiations illustrates the complexity of the coordinating process. Aside from the NDRC, the other relevant bureaucracy is the Ministry of Foreign Affairs (MFA); the Ministry of Environmental Protection (MEP) and Ministry of Science and Technology (MOST) play a secondary role. Because international climate negotiations are primarily a foreign policy issue, representatives from the MFA usually lead the national negotiation team. The ministry is a "hard-liner" in stressing the prominence of Chinese sovereignty in international negotiations.<sup>27</sup> In comparison, the MOST and MEP are relatively more sympathetic to environmental concerns, but they lack bureaucratic weight

23. NDRC's English website is at <[http://en.ndrc.gov.cn/mfod/t20081218\\_252224.htm](http://en.ndrc.gov.cn/mfod/t20081218_252224.htm)>, accessed August 13, 2010.

24. Erica S. Downs, "China's 'New' Energy Administration," *China Economic Review* (December 2008), pp. 42–45.

25. K. G. Lieberthal and Michel Oksenberg, *Policy Making in China: Leaders, Structures, and Processes* (Princeton, N. J.: Princeton University Press, 1988).

26. Downs, "China's 'New' Energy Administration."

27. Heggelund, "China's Climate Change Policy: Domestic and International Developments."

compared to the other two ministries. The MOST is responsible for technical aspects of climate research and issues of technology transfer. The MEP, previously the State Environmental Protection Administration (SEPA), was only granted full ministerial status in 2008. Its smaller size in staff, budget, and bureaucratic weight means that its efforts at championing environmental causes lack the clout of the NDRC and MFA. In sum, the powerful NDRC has responsibility for both economic and energy policies, since a precondition for economic development is having sufficient energy resources. The NDRC and the MFA together are responsible for ensuring that China does not take on international commitments that will impede its economic development, as would be the case—in their view—with emissions reduction.

### ENERGY EFFICIENCY POLICIES AND THEIR MITIGATING EFFECTS

The lack of international commitment does not imply that China has made no effort in mitigating climate change. In fact, the reverse is true—it has a whole host of policies that have mitigating effects, albeit through energy-efficiency improvement. Climate change is framed in terms of efficient utilization of energy and other resources necessary to fuel the country's growth. From the vantage point of the Chinese leadership, climate change mitigation is important because of climate change's threat to energy security and its impact on the domestic environment and society, variables that could potentially derail China's economic growth and delegitimize the Party's rule.

Burning fossil fuels—coal, oil, and natural gas—for heat, electricity, and transport is the major source of carbon emissions in China. Coal, in particular, accounts for about 80% of energy-related emissions.<sup>28</sup> During the centrally planned era of the 1950s–70s, China adopted the Soviet economic model characterized by extremely low energy prices, seemingly endless energy supplies, centralized energy allocation to heavy industry, and total disregard for environmental effects.<sup>29</sup> Nonetheless, energy efficiency has improved significantly since the late 1970s. Between 1978 and 2000, while the Chinese economy grew by 9% per annum, energy demand rose by only 4% a year. This means that each unit of economic output required two-thirds *less* energy in

28. World Resources Institute, "China & Climate: An Overview," *ChinaFAQs*, October 6, 2009, <<http://www.chinafaqs.org/library/chinafaqs-china-climate-overview>>, accessed February 4, 2011.

29. Mark D. Levine, Nan Zhou, and Lynn Price, *The Greening of the Middle Kingdom: The Story of Energy Efficiency in China* (Berkeley: Lawrence Berkeley National Laboratory, 2009), p. 2.

2000 than in 1978.<sup>30</sup> However, the period between 2001 and 2005 saw a surge in export-oriented energy-intensive industries such as steel and chemicals, and an accompanying rise in energy consumption, partly because of China's 2001 accession to the WTO.<sup>31</sup> Energy use per unit of economic output rose by an annual average of 5% in the first half of the 2000s, compared to a 5% average annual reduction during the 1980s and 1990s.<sup>32</sup>

Energy efficiency policies implemented since 2006 have been largely effective thanks to top-down administrative decrees and institutional incentives. In the 11th Five-Year Plan spanning 2006 to 2010, the central authority set a national goal of reducing energy intensity by 20% by 2010 compared to the 2005 level, which was expected to reduce CO<sub>2</sub> emissions by 550 millions tons. One of the most successful energy-saving initiatives under the 11th Plan was the Top-1,000 program, where energy-intensity reduction goals were set for the country's top 1,000 energy-consuming enterprises, which together accounted for one-third of total energy usage. The enterprises signed binding energy conservation agreements with their respective local governments, and local authorities in turn signed responsibility contracts with the central government, pledging to achieve the targets.<sup>33</sup> Since 2006, the target has become a part of the Communist Party cadre evaluation system, where local leaders are assessed by higher-level government officials as part of their job performance evaluation. Because meeting the targets is necessary for career advancement and attaining performance bonuses, the energy-efficiency agreements become an effective tool to gain compliance from provincial and local governments. That said, energy targets are fraught with problems such as arbitrary inclusion of enterprises as well as enterprises' lack of technical capacity in conducting proper audits.<sup>34</sup>

Other significant measures taken to improve energy efficiency included closing inefficient coal-fired power plants and outdated heavy-manufacturing

30. Daniel H. Rosen and Trevor Houser, *China Energy: A Guide for the Perplexed* (Washington, D.C.: Peterson Institute for International Economics, 2007), p. 7.

31. P. Andrews-Speed, "China's Ongoing Energy Efficiency Drive: Origins, Progress, and Prospects," *Energy Policy* 37:3 (2009), pp. 1331–44.

32. Lynn Price, Xuejun Wang, and Jiang Yun, *China's Top-1,000 Energy-Consuming Enterprises Program: Reducing Energy Consumption of the 1,000 Largest Industrial Enterprises in China* (Berkeley: Lawrence Berkeley National Laboratory, 2008).

33. For instance, the central government had an agreement with the Beijing Municipal Government covering 10 enterprises in the city. The municipality then signed binding energy-efficiency agreements with the enterprises. *Ibid.*, pp. 6–7.

34. Author's interview with a Chinese technical consultant to the NDRC and the government on energy efficiency programs, July 2010, Beijing.

facilities. The central government reported that energy intensity fell by 15.6% at the end of 2009 from the 2005 levels, although it rose in the first quarter of 2010 with the introduction of the fiscal stimulus program favoring heavy industries.<sup>35</sup>

The focus of Chinese discourse on energy security has given more weight to domestic environmental problems caused by the inefficient and polluting energy system, and the ensuing economic and social costs.<sup>36</sup> The number of environmentally related social protests has been rising by 30% a year recently.<sup>37</sup> In 2007, the World Bank estimated that outdoor air pollution in China caused between 350,000 and 400,000 premature deaths each year, more than the number of Chinese fatalities in the Korean War.<sup>38</sup> As a consequence, China has taken a number of measures to address domestic environmental issues, which also have the effect of combating global climate change. During 2006–10, China successfully reduced key pollutants such as sulfur dioxide, nitrogen oxide, and chemical oxygen by 10%, per the target set in the 11th Five-Year Plan.<sup>39</sup> At the Copenhagen Summit, China pledged to reduce its carbon intensity by 40% to 45% by 2020, compared to 2005 levels, notwithstanding the non-binding nature of the pledge at the international level. Nevertheless, China is quick to point out that all its efforts to reduce its carbon footprint is motivated by the domestic environmental impact of climate change, rather than international pressure.<sup>40</sup>

## RENEWABLE ENERGY POLICY AS A GROWTH STRATEGY

Despite its lack of international commitment on emissions reduction, the Chinese government has invested heavily in the renewable energy sector. While the U.S. government invested \$18.6 billion in the sector, China's investment topped \$34.6 billion in 2009. The investments accounted for 0.13% and 0.39%

35. It should be noted that the National Bureau of Statistics reported slightly different energy intensity reduction numbers from the central government, reflecting the notoriety of energy figures. Author's interview with a long-time foreign consultant to the Chinese government on energy and environmental issues, July 2010, Beijing.

36. Andrew B. Kennedy, "China's New Energy-Security Debate," *Survival: Global Politics and Strategy* 52:3 (2010), p. 137. Chinese academics who have expressed this view include Zha Daojiong and Zhu Chengzhang.

37. Zhang, "Lun guoji huanjing baohu dui guojia zhuquan de yingxiang," pp. 74–75.

38. However, the Chinese government insists that the World Bank not publish the figures, worrying that they may pose a threat to social stability.

39. Tom Miles and David Stanway, "China Meets 5-year Target to Cut Energy Intensity: Report," Reuters, January 6, 2011, <<http://reuters/ekZwkm>>, accessed January 6, 2011.

40. Hu, "Quanqiu qihou bianhua yu zhongguo lüse fazhan."

of their total GDPs, respectively.<sup>41</sup> Though investment in renewable energy has the potential of lowering carbon emissions, the Chinese government is primarily motivated by the strategic growth potential of the industry—rather than by climate change concerns—even though the two objectives are not mutually exclusive.<sup>42</sup> The clean energy industry has been officially classified in the 12th Five-Year Plan (2011–15) as a “pillar industry” that the government wants to promote strategically. This is part of the Chinese government’s industrial policy to cultivate homegrown or indigenous innovation.<sup>43</sup> In his address to an international audience at the World Economic Forum at Davos, Switzerland, in 2009, Premier Wen stated that China will “accelerate the development of a low carbon economy and green economy” in order to “gain an advantageous position in the international industrial competition.”<sup>44</sup>

In the 12th Five-Year Plan, new renewable energy, energy conservation and environmental protection, and clean-energy vehicles are among the seven “strategic emerging industries” singled out for development as China looks to restructure its economic model away from low-end manufacturing. Promotion of the renewable-energy industry is part of China’s strategic shift away from quantity-based growth to quality growth. The Plan is a remnant of the Soviet-style economic blueprint that centrally sets national goals and objectives for the next five years. However, with economic decentralization, the plan has been transformed into general guidelines for economic and social policies. The national guidelines help regional and local governments craft their specific economic goals and objectives.<sup>45</sup>

41. Juliet Eilperin, “China Leading the World in Clean Energy Investment,” *Washington Post*, September 29, 2010, <<http://www.washingtonpost.com/wp-dyn/content/article/2010/09/29/AR2010092906595.html>>, accessed November 2, 2010.

42. Joanna I. Lewis, “Renewable Strategies: Industrial Policy Scrubs Up,” *China Economic Quarterly* 15:1 (March 2011), pp. 17–21.

43. James McGregor, “China’s Drive for ‘Indigenous Innovation’: A Web of Industrial Policies,” U.S. Chamber of Commerce, 2010, <[http://www.uschamber.com/sites/default/files/reports/100728chinareport\\_o.pdf](http://www.uschamber.com/sites/default/files/reports/100728chinareport_o.pdf)>; “Of Solar Tech and Chicken McNuggets: My Testimony before the U.S.-China Commission,” n.d., <<http://greenleapforward.com/2010/07/29/of-solar-tech-and-chicken-mcnuggets-my-testimony-before-the-us-china-commission>>, accessed November 2, 2010; Julian W. Wong, “The Challenge of China’s Green Technology Policy and Ohio’s Response,” July 14, 2010, <[http://www.americanprogressaction.org/issues/2010/07/pdf/wong\\_green\\_china\\_testimony.pdf](http://www.americanprogressaction.org/issues/2010/07/pdf/wong_green_china_testimony.pdf)>, accessed November 2, 2010.

44. Jiabao Wen, “Full text of Chinese Premier Wen Jiabao’s Speech at 2009 Summer Davos in Dalian,” September 11, 2009, <[http://www.gov.cn/english/2009-09/11/content\\_1414917.htm](http://www.gov.cn/english/2009-09/11/content_1414917.htm)>, accessed December 21, 2010.

45. APCO Worldwide, *China’s 12th Five-Year Plan*, p. 3.

Despite the enormous attention focused on the renewable-energy industries, they currently account for only a tiny proportion of total power generation in China. For instance, wind accounted for just over 1% of total power generated.<sup>46</sup> Nonetheless, the government aims to raise these industries' contribution to GDP from 5% to 8% by 2015 and 15% by 2020.<sup>47</sup> The overall policy thrust is to promote indigenous innovation and to create national champions to create a more consumption-driven and inclusive-growth model. To realize this goal, the government has pledged investment of more than four trillion yuan (\$640 billion) on these industries during 2011–15, and has also introduced favorable tax policies and financial support to promote these sectors.<sup>48</sup>

The Chinese government began encouraging the development of new renewable energy in its 10th Five-Year Plan (2001–05), during which it introduced preferential tax policies and financial subsidies to support wind power and biomass liquid fuel development. The sector has also benefited from various research and development (R&D) programs funded by the MOST. One is the State High Tech Development Plan or “863 Program,” established in 1986, which aims at stimulating the development of advanced technologies to reduce China's dependence on foreign technologies. During the 11th Five-Year Plan (2006–10), energy technologies such as hydrogen and fuel cells, energy efficiency, clean coal, and renewable energy received 1.12 billion yuan (\$179 million) of funding from the program.<sup>49</sup> Another relevant program is the National Basic Research Program or “973 Program,” established in 1997, which aims at supporting basic R&D. Between 1998 and 2008, the program poured in total funding of 8.2 billion yuan (\$1.3 billion), 30% of which went to energy, resource conservation, and environmental protection.<sup>50</sup> These programs were all part of a concerted effort to foster indigenous innovation and to reduce reliance on foreign innovation.<sup>51</sup>

46. Sebastian Meyer, “Wind Power: Northeasterly Gusts Expected,” *China Economic Quarterly* 15:1 (March 2011), pp. 27–32.

47. APCO Worldwide, *China's 12th Five-Year Plan*, p. 3.

48. Anon., “China to Promote Seven Strategic Emerging Industries,” *Business China*, September 9, 2010, <<http://en.21cbh.com/HTML/2010-9-9/emerging-industries.html>>, accessed December 21, 2010; Jun Pu and Zhu Chen, “China Drafts Energy Development Plans,” *Caixin* [Financial News], September 23, 2010, <<http://english.caixin.com/2010-09-23/100183649.html>>, accessed December 21, 2010.

49. Xiaomei Tan and Gang Zhao, “An Emerging Revolution: Clean Technology Research, Development, and Innovation in China,” World Resources Institute, December 2009, <[pdf.wri.org/working\\_papers/an\\_emerging\\_revolution.pdf](http://pdf.wri.org/working_papers/an_emerging_revolution.pdf)>, accessed March 1, 2010.

50. *Ibid.*

51. Lewis, “Renewable Strategies,” p. 20.

These national efforts to expedite international technology transfer and to create competitive domestic players have yielded some success. Goldwind, currently the leading wind turbine manufacturer in China, has acquired foreign technologies through a combination of licensing, mergers and acquisitions, and joint development—a path that has been followed by other domestic wind turbine manufacturers.<sup>52</sup> The recent intellectual property dispute between American Semiconductor (AMSC) and its customer, Sinovel, a Chinese wind turbine maker, over alleged theft of software code heightens what is often perceived as a zero-sum competitive green-tech race, and casts in shadow the policy of indigenous technology development by international technology transfer from developed nations.<sup>53</sup>

China is not the only country that is aggressively cultivating its renewable energy sector. Wind turbine manufacturers in India and South Korea are also benefiting from generous government subsidies, although the support provided by the Chinese government has been the most consistent. Stable and supportive government policies are said to be “critical” in nurturing domestic players and generating market demand for renewable energy among countries that were not part of the first group of innovators.<sup>54</sup> National R&D support provided by these governments has been credited with enabling domestic companies to learn and acquire industry experience in their home markets before competing abroad.<sup>55</sup>

In 2007, the Chinese government issued the Medium- and Long-Term Development Plan for Renewable Energy, aimed at raising the contribution of renewable energy in total energy consumption from 10% to 15% by 2020.<sup>56</sup> Under the plan, the government required power companies that own installed capacity of over five gigawatts (GW) to have at least 3% of their total capacity coming from non-hydro renewable energy-installed power by 2010, and at least 8% by

52. Ibid.; Joanna I. Lewis, “Building a National Wind Turbine Industry: Experiences from China, India, and South Korea,” *International Journal of Technology and Globalisation* 5:3/4 (2011), pp. 286–87.

53. For more details on the intellectual property dispute, see Tim Smith, Jill McWhirter, and Bryan Adams, “Behind the AMSC/Sinovel Dispute: A Look at IP Law in the U.S. vs. China,” *North American Wind Power*, October 18, 2011, <[http://www.nawindpower.com/e107\\_plugins/content/content.php?content.8757](http://www.nawindpower.com/e107_plugins/content/content.php?content.8757)>.

54. Joanna I. Lewis and Ryan H. Wiser, “Fostering a Renewable Energy Technology Industry: An International Comparison of Wind Industry Policy Support Mechanisms,” *Energy Policy* 35 (2007), p. 1845.

55. Ibid.

56. NDRC, “Medium- and Long-Term Development Plan for Renewable Energy in China,” n.d., <[http://www.asiapacificpartnership.org/pdf/REDGTF/4th\\_meeting/China-\\_Medium\\_and\\_Long-Term\\_Development\\_Plan.pdf](http://www.asiapacificpartnership.org/pdf/REDGTF/4th_meeting/China-_Medium_and_Long-Term_Development_Plan.pdf)>, Article 3.2, accessed December 19, 2010.

2020. This measure has catalyzed the development of wind power in China, especially by increasing large wind projects by sizable power companies.<sup>57</sup>

The favorable policy environment has helped China to become one of the largest wind power markets in the world and the fastest-growing installer of wind turbines. With a cumulative installed capacity of 25.8 GW in 2010, China has become the second largest wind power base after the U.S., surpassing the other major international players, namely, Germany, Spain, and India.<sup>58</sup> The central government has set a target of increasing wind power capacity to 100 GW by 2020.<sup>59</sup> Various provincial and municipal governments have also adopted measures to promote renewable energy that are designed to carry out national policy. These measures provide financial support from subnational governments and set specific targets for sectoral development in the respective jurisdictions. Nevertheless, Chinese firms will have to compete in export markets as the domestic market becomes saturated over time, which could become problematic: some Chinese wind turbine technology has been plagued by quality concerns.<sup>60</sup> Cost competitiveness alone may be insufficient in ensuring success in export markets.

China has achieved enormous success in solar panel manufacturing. It is currently the world's largest manufacturer of solar photovoltaic (PV) cells, supplying 30%–45% of global solar PV panels despite low domestic utilization. The fact that more than 90% of the country's domestically manufactured PV cells are destined for export markets suggests prima facie that the solar industry is primarily an export sector.<sup>61</sup> Solar currently accounts for less than 1% of total domestic electricity consumption. Solar power deployment in China faces a few obstacles, including a relatively high cost compared to its alternatives, as well as a lack of transmission lines to consumers. To boost domestic deployment, the Golden Sun Demonstration Program initiated in

57. Lewis, "Building a National Wind Turbine Industry," pp. 284–85.

58. Global Wind Energy Council (GWEC), *Global Wind Report 2009 [Online]*, 2009, <[http://www.gwec.net/fileadmin/documents/Publications/Global\\_Wind\\_2007\\_report/GWEC\\_Global\\_Wind\\_2009\\_Report\\_LOWRES\\_15th.%20Apr.pdf](http://www.gwec.net/fileadmin/documents/Publications/Global_Wind_2007_report/GWEC_Global_Wind_2009_Report_LOWRES_15th.%20Apr.pdf)>.

59. World Resources Institute, "Wind's Rising Superpower," *ChinaFAQs*, July 15, 2010, <<http://www.chinafaqs.org/library/chinafaqs-winds-rising-superpower>>, accessed January 2, 2011.

60. Lewis, "Building a National Wind Turbine Industry," p. 299.

61. Chinese-manufactured solar panels are the market leader in California, commanding a market share of about 45%. U.S.-China Economic and Security Review Commission (USCC), *2010 Report to Congress of the U.S.-China Economic and Security Review Commission* (Washington, D.C., November 2010), p. 203, <[http://www.uscc.gov/annual\\_report/2010/annual\\_report\\_full\\_10.pdf](http://www.uscc.gov/annual_report/2010/annual_report_full_10.pdf)>, accessed January 2, 2011.

2009 provides funding equivalent to 50%–60% of production costs to solar producers. It subsidizes 50%–70% of the cost of installing PV generation and transmission systems for selected projects.<sup>62</sup>

Although the renewable energy sector is expected to create jobs, some regions are expected to experience net job losses as a result of their industrial structure. The government expects development of the renewable energy sector to create two million jobs.<sup>63</sup> However, northeast regions such as Shanxi Province, which has a concentration of coal production, is expected to be the biggest net loser in terms of employment. Western and poor central-western regions will likely gain the most from jobs created by development of the renewable energy sector, because it is not likely to replace any existing industries.<sup>64</sup>

Policies aimed at stimulating development of new renewable energy also include the more controversial government procurement laws and regulations, which have been perceived as protectionist and discriminatory against foreign manufacturers.<sup>65</sup> The Government Procurement Law enacted in 2002 stipulates that government organizations' procurement should be limited to domestically made goods. Even though the law does not strictly apply to state-owned enterprises (SOEs), it is forcing state-owned wind farms, which dominate renewable power generation in China, to buy from domestic equipment manufacturers, particularly when government funds are used to finance the purchase.<sup>66</sup> In 2005, the NDRC issued a notice requiring all wind farms constructed in China to meet a 70% local-content requirement, although this was rescinded in 2009 upon complaints by U.S. manufacturers. Notwithstanding that, the measure had been credited for raising demand for domestically produced wind components while inducing foreign firms to establish manufacturing facilities in China to satisfy the local-content requirement.<sup>67</sup>

62. World Resources Institute, "Solar Energy," *ChinaFAQs*, May 19, 2010, <<http://www.china-faqs.org/library/china-faqs-solar-energy>>; Network for Climate and Energy Information, Climate Group, "China's Climate Revolution II: Opportunities for a Low Carbon Future," August 2009.

63. Armelle Guizot, *Chinese Energy Market* (New York: Palgrave Macmillan, 2007).

64. Sara Hsu and Shelley Nauss, "Employment Impacts of a 'Green' Energy Transition in China," *China Economic Journal* 2:2 (2009), p. 228.

65. McGregor, "China's Drive for 'Indigenous Innovation'."

66. Thomas R. Howell et al., *China's Promotion of the Renewable Electric Power Equipment Industry: Hydro, Wind, Solar, Biomass*, Dewey & LeBoeuf LLP for the National Foreign Trade Council, March 2010, p. 21, <<http://www.nftc.org/default/Press%20Release/2010/China%20Renewable%20Energy.pdf>>.

67. *Ibid.*, p. ii.

Officials have also implemented measures to give priority in government procurement to products made with “indigenous” intellectual property. These measures have led to SOEs’ procurement favoring domestic manufacturers of renewable energy equipment.<sup>68</sup> Chinese law imposed a ban on deployment of turbines of less than 1,000 kilowatts (KW) on the grounds of economic inefficiency. The ban discriminates against imported turbines because most models produced by European and American companies are smaller than those made by their Chinese counterparts.<sup>69</sup>

Recently, the Chinese government’s preferential policies for the clean technology industry have triggered a spate of trade disputes with the U.S. U.S. manufacturers have accused local governments in China of violating WTO rules by offering heavily subsidized land and low-interest loans to domestic manufacturers.<sup>70</sup> Even though mass production of PV and wind turbines by the Chinese manufacturers has lowered prices and made the technology more affordable, the U.S. and other Western governments see this not as an opportunity to mitigate climate change but rather as a threat to their domestic manufacturers.<sup>71</sup> This suggests that the renewable energy industry is becoming a strategic growth sector that governments everywhere want to champion, and that is threatened by overcapacity.

68. Ibid.

69. Larger wind turbines are more expensive but incur fewer maintenance costs, and hence are considered more efficient. However, they require new and bigger investment, which the existing foundries in the U.S. and Europe are reluctant to commit to unless sales and profits are guaranteed. For more details, see USCC, *2010 Report to Congress of the U.S.-China Economic and Security Review Commission*, p. 201.

70. Keith Bradsher, “China Takes Lead in Clean Energy, with Aggressive State Aid,” *New York Times*, September 9, 2010, <[http://www.nytimes.com/2010/09/09/business/global/09trade.html?\\_r=2&partner=TOPIXNEWS&ei=5099](http://www.nytimes.com/2010/09/09/business/global/09trade.html?_r=2&partner=TOPIXNEWS&ei=5099)>, accessed December 23, 2010; Sewell Chan, “U.S. Says China Fund Breaks Rules,” *ibid.*, December 22, 2010, <<http://www.nytimes.com/2010/12/23/business/global/23trade.html?sq=china%20clean%20energy&st=cse>>, accessed December 23, 2010; Keith Bradsher, “To Conquer Wind Power, China Writes the Rules,” *ibid.*, December 14, 2010, <<http://www.nytimes.com/2010/12/15/business/global/15chinawind.html?scp=10&sq=china%20clean%20energy&st=cse>>, accessed December 23, 2010; Tom Zeller, Jr., and Keith Bradsher, “China’s Push into Wind Worries U.S. Industry,” *ibid.*, December 15, 2010, <<http://www.nytimes.com/2010/12/16/business/global/16wind.html?scp=20&sq=china%20clean%20energy&st=cse>>, accessed December 23, 2010.

71. For instance, a media article comments, “Photovoltaic is one of the world’s fastest growing industries . . . but the United States is a small producer in the industry it invented. The United States now accounts for only 4.4 percent of global production.” Anon., “U.S. Accounts for Less Than 5 Percent of Global Solar Production,” *Manufacturing & Technology News*, September 17, 2010, <[http://findarticles.com/p/articles/mi\\_hb5730/is\\_14\\_17/ai\\_n55443941/](http://findarticles.com/p/articles/mi_hb5730/is_14_17/ai_n55443941/)>, accessed December 23, 2010.

In fact, competition over clean technology resonates strongly with the trade wars during the 1970s and 1980s over personal computers, automobiles, electronic equipment, and other high-tech products between the U.S. and Japan, then an emerging economic superpower. Some analysts argue that the clean technology issue is symptomatic of a larger flaw in the high-tech policy of the U.S.<sup>72</sup> Whether or not Chinese policies on clean technology are indeed discriminatory against foreign imports is beyond the scope of this paper. However, it is beyond dispute that the Chinese government is actively promoting the renewable-energy sector as a growth industry by providing generous subsidies and preferential treatment to domestic manufacturers. Furthermore, industrial policy is not only pursued by the central government; many provincial and regional authorities are also providing incentives to promote the establishment of local renewable energy industries.<sup>73</sup>

Another important reason China is promoting renewable energy is to improve its energy security, which, if unaddressed, will severely constrain the country's prospects for growth. China's share of energy consumption worldwide rose from 10% in 2001 to more than 15% in 2009. China became the world's largest energy consumer in 2010, according to the IEA. The main drivers of growth come from the industrial sector, namely, iron and steel, chemicals, cement and glass, non-ferrous metal, and paper and pulp, which account for over 70% of its energy consumption.<sup>74</sup> These materials are necessary to fuel China's domestic construction and real estate boom and to produce exported goods for market worldwide. The country's economic growth rate will become unsustainable if its energy security comes under threat. In addition, dependence on imported oil leaves China vulnerable to price instability and supply disruptions.<sup>75</sup> A common concern is that oil price hikes

72. In written testimony before the U.S.-China Economic and Security Review Commission, Julian Wong, a senior policy analyst for the Center for American Progress Action Fund, argued that the U.S. government, unlike its Chinese counterpart, has failed to articulate a grand vision for the clean technology industry. Also, complaints about the protectionist measures of other countries is a "symptom of a larger ill"—the U.S. government failed to develop the sector in the first place, leaving the domestic clean energy companies few opportunities to grow at home. See Wong, *The Challenge of China's Green Technology Policy and Ohio's Response*. A similar sentiment is shared by Joanna Lewis. See Lewis, "Renewable Strategies."

73. *Ibid.*, p. 20.

74. Rosen and Houser, *China Energy: A Guide for the Perplexed*, p. 8.

75. USCC, *2008 Report to Congress of the U.S.-China Economic and Security Review Commission* (Washington, D.C., November 2008), pp. 186–87, <[www.uscc.gov/annual\\_report/2008/annual\\_report\\_full\\_08.pdf](http://www.uscc.gov/annual_report/2008/annual_report_full_08.pdf)>.

will fuel inflation, which could potentially trigger social unrest.<sup>76</sup> Although renewable energy currently accounts for less than 10% of total electricity generation, the government has set ambitious targets for its future growth.

Until recently, the Chinese government devoted its efforts to developing hydropower as an alternative energy supply, including construction of the Three Gorges Dam, the world's largest, on the Yangtze River. Dam construction is not uncontroversial, because there are often adverse social, political, and environmental consequences.<sup>77</sup> The limits of hydropower thus partly explain the government's push into new renewable energy.

Government efforts to promote renewable energy notwithstanding, there are some barriers to developing the sector. The significant cost differential between renewable energy and coal-powered electricity means that grid companies are reluctant to adopt cleaner energy because they have to pay more.<sup>78</sup> Coal-powered electricity enjoys a significant cost advantage partly because its prices fail to take into account the cost of pollution.<sup>79</sup> In addition, because electricity prices paid by consumers are fixed by the government, grid companies cannot pass on the costs to end users. Instead, they are forced to absorb higher costs associated with renewable energy.<sup>80</sup> Recent amendments to the Renewable Energy Law introduced in 2009 were meant to improve the incentives for grid companies to adopt renewable energy. One-third of wind farms are not currently connected to the grid.

## CONCLUSION

The seemingly paradoxical climate-relevant policies in China are not contradictory. The scarcity of internationally binding commitments there stems from Beijing's priority for growth and concerns for national sovereignty and equity. Whereas the push for renewable energy is primarily a policy to promote strategic growth industries, it is also meant to address China's energy security concerns, which could potentially derail its growth prospects,

76. Erica S. Downs, "The Chinese Energy Security Debate," *China Quarterly* 177 (2004), p. 31.

77. For instance, Mertha has discussed grass-roots movements and policy activism involved in the construction of the Nu River Dam. See Andrew Mertha, *China's Water Warriors: Citizen Action and Policy Change* (Ithaca, N.Y.: Cornell University Press, 2008).

78. Judith A. Cherni and Joanna Kentish, "Renewable Energy Policy and Electricity Market Reforms in China," *Energy Policy* 35 (2007), p. 2620.

79. *Ibid.*, p. 2621.

80. Z. Zhang et al., "Renewable Energy Development in China: The Potential and Challenges [Online]," 2001, <[www.ecchina\\_RE-Report\\_EN.pdf](http://www.ecchina_RE-Report_EN.pdf)>.

if unaddressed. Though domestic economic considerations affect climate change policies around the world, they feature more prominently in China's calculus. With its large proportion of poor and rural population, China still sees itself as a developing country that should prioritize growth over environmental issues.

The country's domestic political and economic considerations have important normative implications for how the international community should deal with China. It is important to recognize the domestic political constraints faced by the Chinese leadership. The CCP's ruling legitimacy hinges on its ability to continue delivering prosperity to the people. Various levels of government officials in China are evaluated by the leadership on their ability to promote local economic development and collect tax revenue. It is politically unrealistic to expect the Chinese government to compromise economic growth for global climate change mitigation. The government is, however, addressing energy security and domestic environmental concerns because they have adverse economic, social, and political consequences at home. China's aggressive entry into the renewable energy market should not only be viewed in competitive terms: it is contributing to global climate change mitigation by driving down the costs of technology and expediting its widespread adoption.<sup>81</sup>

The growth imperative aside, China's unswerving negotiating stance reflects growing confidence in its augmented economic weight and global identity. At the same time, the tough stance is also a forceful assertion of sovereignty and nationalism, reflecting China's sense of what is fair for industrialized versus developing nations. These are non-trivial consequences of a "victim mentality."<sup>82</sup> Beginning with the First Opium War of 1839–42, China faced more than a century of invasion, division, and crippling by Western powers. It frequently suffered severe economic decline until the introduction of liberal economic reforms in the early 1980s. Therefore, a "victim mentality" characterizes its national psyche—China sees itself as a victim of Western imperialism. This has given rise to an acute Chinese sensitivity to potential infringements of its sovereignty and a strong emphasis in public diplomacy on the principles of equality, mutual respect, and non-interference in any state's internal affairs. Viewed from this perspective, China's international stance

81. Lewis, "Renewable Strategies," p. 20.

82. Evan S. Medeiros, *China's International Behavior: Activism, Opportunism, and Diversification* (Santa Monica, Calif.: RAND Corporation, 2009).

on climate change resonates with its strong responses to perceived challenges from the U.S. and other industrialized nations on sensitive issues such as human rights, trade fairness, currency revaluation, Tibet, and the Falungong organization. The more the Western nations push it in a certain direction, the more China will resist. It is counterproductive to pressure China for more vigorous action on climate. The best bet is to improve its capacity to mitigate climate change by establishing and intensifying bilateral cooperation on clean technology and energy-efficiency projects.